Eltron

User's Manual No. 980179-001 Rev. A

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FOREWORD

This manual contains installation and operation information for the Privilege Series card printers manufactured by Eltron International Incorporated, Simi Valley, California.

RETURN MATERIALS AUTHORIZATION

Before returning any equipment to Eltron for in-warranty or out-of-warranty repair, contact Repair Administration for a Return Materials Authorization (RMA) number. Repack the equipment in the original packing material and mark the RMA number clearly on the outside. Ship the equipment, freight prepaid, to the address listed below:

Eltron Repair Administration, USA
41 Moreland Road
Simi Valley, CA. 93065
Phone: +1 (805) 579-1800
FAX: +1 (805) 579-1808

Label Printers:
Eltron International, Europe
Eltron House
Molly Millars Lane
Wokingham RG41 2QZ England
Phone: +44 (0) 1189 770 300
FAX: +44 (0) 1189 895 762

Card Printers:
Eltron International, Europe
Zone Indutrielle, Rue d'Amsterdam
44370 Varades, France
Phone: +33 (0) 240 097 070
FAX: +33 (0) 240 834 745

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TRADEMARKS

Privilege, Privilege P500 and Privilege P600 are service marks. Privilege Card is a trademark of Privilege Card, S. A., a subsidiary of Eltron International Incorporated and Eltron is a trademark of Eltron International Incorporated. Windows and MS-DOS are registered trademarks of Microsoft Corp. All other marks are trademarks or registered trademarks of their respective holders.

WARRANTY INFORMATION

We Need To Hear From You!

To Establish Your Warranty Period And Provide Access To Technical Support, Send Us Your Product Registration Card Today!

Eltron warrants the mechanism, control electronics and power supply, under normal use and service, to be free from defects in material and workmanship for a period of twelve (12) months from the date of purchase by the end user. Eltron warrants the print head and Laminator head, under normal use and service, to be free from defects in material and workmanship for a period of one year or 40,000 passes (whichever occurs first) from the date of purchase by the end user. Proof of purchase or product registration is required. If proof of purchase or product registration cannot be established, shipment date to the original buyer (dealer or distributor) will be used to establish the warranty period.

Failure to exercise caution to protect the equipment from electrostatic discharge damage, adverse temperature and humidity conditions or physical abuse may void the warranty. Failure to use only Eltron approved media may void the warranty. Eltron will, at it's option, repair or replace the equipment or any parts which are determined to be defective within this warranty period, and which are returned to Eltron F.O.B. factory of origin.

The warranty set forth above is exclusive and no other warranty, whether written or oral, is expressed or implied. Eltron specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

FCC NOTICE:

This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

INDUSTRY CANADA NOTICE:

This device complies with Industry Canada ICS-003 class B requirements.

Cet equipement est conforme a l'ICS-003 classe B de la norm Industrielle Canadian

Icon Descriptions

	Indicates a mechanical hazard, such as one associated with moving parts, capable of resulting in equipment damage or personal injury.
	Indicates an electrical hazard, such as an exposed voltage point, capable of causing electrical shock and personal injury if touched.
	Indicates information of particular interest that requires consideration in the associated context.
	Indicates a part that can operate at an elevated temperature capable of causing pain or a burn if touched.
	Indicates an area where an electrostatic discharge (ESD) can cause component damage. Use a grounding wrist band.
	Indicates that fiber deposits from fibrous cleaning materials (e.g., cotton swabs) can reduce print quality.
	Indicates that exposure to dust and other airborne particles can contaminate the printer and reduce print quality.
	Indicates that except for card and ribbon loading and maintenance, the cover must remain closed.

ELTRON INTERNATIONAL, INC.

declares that the
déclare que le
bescheinigt, daß das Gerät
declara que el
dichiara che

P500 Card Printer
P600 Card Printer

is in conformance with the requirements of the European Council Directives listed below:
est conforme aux spécifications des directives de l'Union Européenne ci-dessous:
der nachstehend angeführten Direktiven des Europäischen Rats:
cumple con los requisitos de las Directivas del Consejo Europeo, según la lista siguiente:
è conforme alle specifiche delle sequenti direttive dell'Unione Europea:

89/336/EEC	EMC Directive
92/31/EE	EMC Directive
73/23/EEC	Low Voltage Directive

On the approximation of the laws of Member States relating to Electromagnetic Compatibility and Product Safety.
Basées sur la législation des Etats membres relative à la compatibilité électromagnétique et à la sécurité des produits.
Über die Annäherung der Gesetze der Mitgliedsstaaten in bezug auf elektromagnetische Verträglichkeit und Produktsicherheit entspricht.
Basado en la aproximación de las leyes de los Países Miembros respecto a la Compatibilidad electromagnética y las Medidas de seguridad relativas al producto.
Basate sulla legislazione degli stati membri relativa alla compatibilitá elettromagnetica e alla securezza dei prodotti.

This declaration is based upon compliance of the product to the following standards:
Cette déclaration repose sur la conformité du produit aux normes suivantes:
Diese Erklärung basiert darauf, daß das Produkt den folgenden Normen entspricht:
Esta declaración se basa en el cumplimiento del producto con las siguientes normas:
Questa dichiarazione si basa sulla conformitá del prodotto alle norme sequenti:

EN 55022-A, CISPR 22RF Emissions Control
EN 500082-1 IEC 801Immunity to Electromagnetic Dicturbances
EN 60950 IEC 950 Product Safety

CE

Hugh Gagnier, President
ELTRON INTERNATIONAL, Inc.
41 Moreland Road
Simi Valley, CA 93065-1692 U.S.A.

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1
Getting Started

Eltron Privilege Multiple-Station Card Printers

This section contains information on the installation of Eltron's P500 and P600 Privilege Multiple-Station card printers.

Introduction

Eltron's Privilege Series card printers offer a low cost, high quality solution to those requiring computer-controlled printing and encoding of credit card style plastic cards. Card applications include personalized identification, access control, visitor, membership, promotion and luggage card, badges and tags.

Features

- 300 dots-per-inch print resolution for crisp, clear printing.
- High resolution color dye sublimation technology supporting 32.7K colors for photo quality imaging, along with:

  Monochrome thermal transfer technology for solid imaging of Bar Codes, Text and Graphic Objects, each producable from command parameters, making related bit map downloads unnecessary.
- A Bar Code command that can produce encoded card printing in any of 10 resident bar code formats, and a Text command that can produce text using 2 resident fonts.
- A 3-Track Magnetic Stripe Encoder option that writes and then read-verifies data, supporting cards with high- or low-coercivity magnetic stripes. P500s can have either up- or down-facing stripe encoders.
- P500s have Windows™ design and print user software and a Windows™ printer control driver that supports True Type fonts.
- Efficiently designed to fit in minimum footprint, with a see-through cover that offers users a view of the process while offering protection from exposure to environmental contaminants.
- Produces duplex (two-sided) Prints on either plain or preprinted plastic card materials.

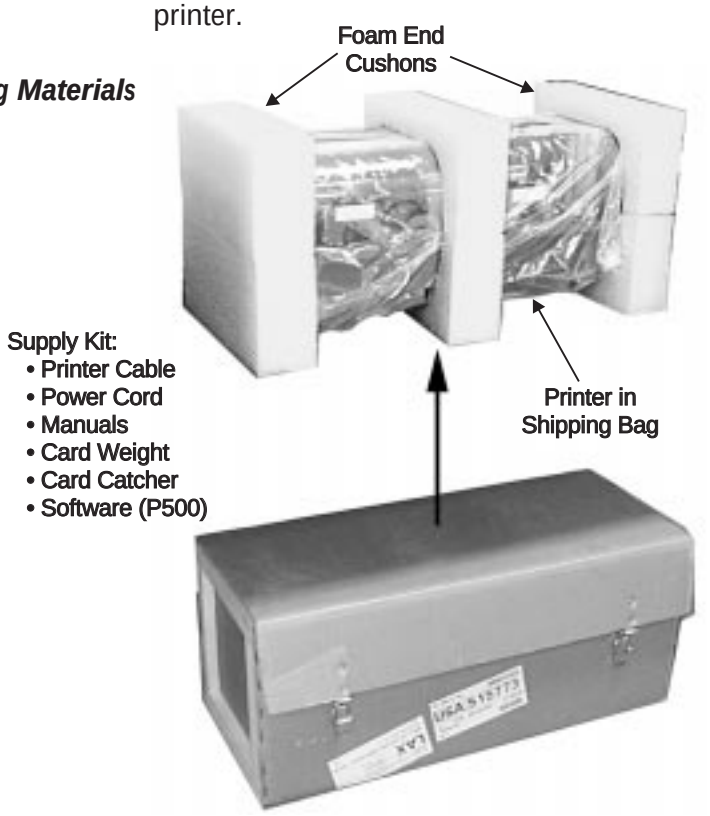
Models All printers have parallel printer ports. P500s Include WindCard™ Classic Software. Printers may be ordered in any of the following standard configurations:

Model No.	Description					
P500CF 120385-001	Color Printer with Laminator					
P600 120284-001	Multiple Station Color Printer					
Options						
Option No.'s	**Expanded Memory (P500)**	**Low Coercivity Encoder**	**High Coercivity Encoder**	**Encodes Down-facing Stripe**	**Encodes Up-facing Stripe**	**Power Cord**
104525-001	•					
104674-001		•		•		
104674-002			•	•		
104674-003		•			•	
104674-004			•		•	
300020-001						120V
300020-002						230V

Unpacking Privilege Card Printers

Printers ship in a carton and protective bag. Keep all packing material in case the need to move or reship the printer arises. Avoid touching the electrical connectors to prevent electrostatic discharge damage while setting up the printer.

Packing Materials



The discharge of electrostatic energy that accumulates on the surface of the human body or other surfaces can **damage or destroy the print head** or other electronic components used in this device.

When unpacking the Privilege card printer (and card media), be aware that a clean and nearly dust free environment is required for proper operation and storage. The print quality can be effected by dust, body oils and acids (i.e., finger prints) and exposure to other foreign materials during unpacking or handling of the printer and media.

Check List Your Privilege Card Printer ships with the items listed below:

- Printer (Check for proper Model):

- Interface Cable

- Power Cord

- Card Feeder Weight

- Card Catcher

- Manuals:
  - Printer User's Guide

- Software
- CD-ROM
  - WindCard Software
  - Windows Driver(s)

If any items are missing, contact your dealer for replacement parts.

Card media, ribbon, and supplies are available from your Eltron distributor or call ELTRON at **(800) 344-4003** for the distributor nearest you. Refer to Appendix B for complete supplies ordering information.

Installation

The following sections serve as a guide to printer , WindCard™ software, and Windows™ card printer driver installations.

Step ❶ Unpacking

With help from another person, remove the printer from the carton and protective plastic bag.

AC power supplied to Privilege card printers must be current limited to 16-amps or less using an associated circuit breaker or other such electrical device.

Step ❷ Attach Power

Place the printer in a **clean, dust free location** that allows easy access to all sides of the printer. *Never operate the printer while it rests on a side or upside down.*

Set the AC power switch to the OFF (0) position.

Figure 1-1 Printer Rear Panel

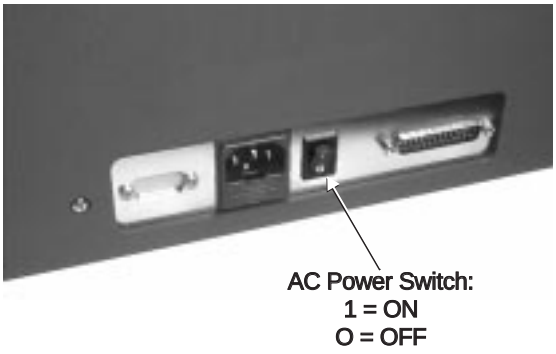
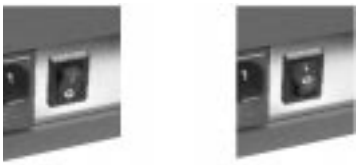


Figure 1-2 Power Switch Positions



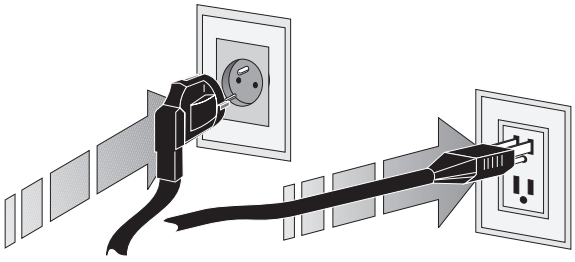
Never operate the printer in a location where the operator, computer, or printer can get wet. Personal injury could result.

Attach the AC power cord to the AC power receptacle in the rear of the printer.

Figure 1-3 Power Connection

Attach the AC power cord to a grounded electrical outlet of the proper voltage and plug type.

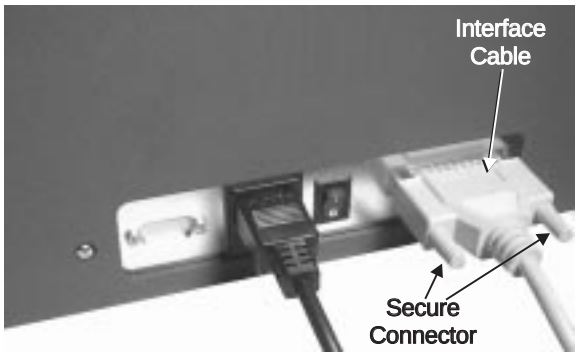
Figure 1-4 AC Outlet Connection



Step ❸ Attach Interface Cable

Attach and secure the supplied DB-25 (female) to DB-25 (male) parallel printer cable between the parallel port of the host computer and the parallel interface connector on the back of the printer.

Figure 1-5 Interface Cable



Intermittent or unpredictable operation may occur from unsecured connectors.

See Appendixes A and B for cable specifications and ordering information.

Step ❹ Applying Power

Set the power switch to ON (1). Note that messages appear on the LCD screens as the printer cycles through the power-on sequence. Also note that READY appears at the end of the sequence. If these events either fail to occur or an ERROR message appears instead of READY, refer to Appendix A - Trouble Shooting.

Step ❺ Windows™ 3.1 Software Installation

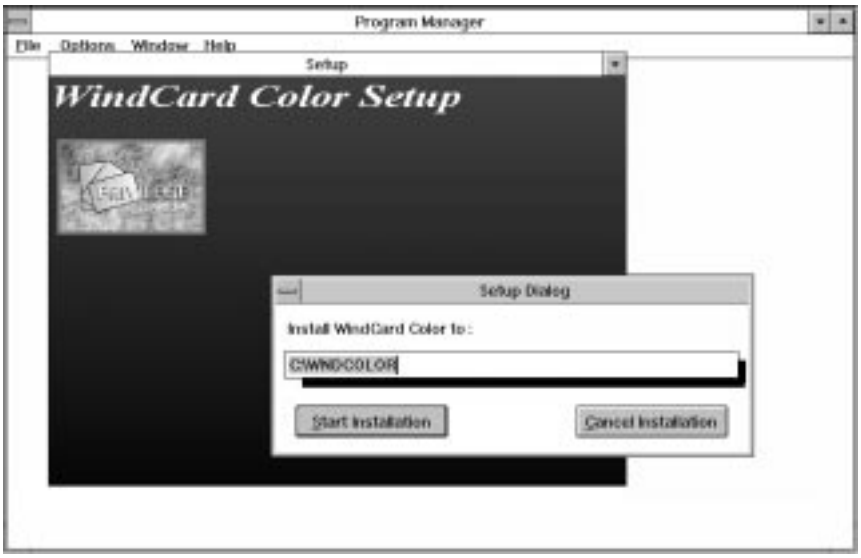
Start the host computer. After DOS has loaded, start Windows™. Insert the WindCard™ diskette into a floppy disk drive. From the Windows™ **Program Manager's File** pull-down menu, select **Run....**

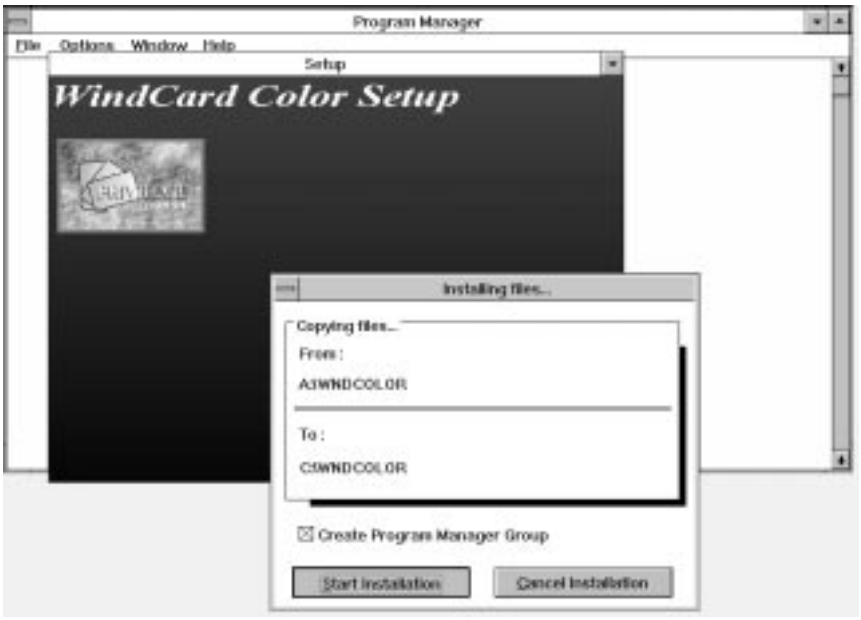
Enter **A:SETUP** (or B:SETUP if you placed the diskette in drive B). Press the **Enter** key.

Follow the installation instructions on the screen to install the software.

Refer to Section 2, Operation, for information on loading cards and ribbons and for initializing the printer for operation.

See Appendix C for loading WindCard™ software into other operating platforms and the Windows™ Printer Driver file.




Program Manager
File Options Window Help
Setup
WindCard Color Setup
Installing files...
Copying files...
From :
A:\WNDCOLOR
To :
C:\WNDCOLOR
Create Program Manager Group
Start Installation
Cancel Installation

Program Manager
File Options Window Help
Setup
WindCard Color Setup
Setup Dialog
Install WindCard Color to :
C:\WNDCOLOR
Start Installation
Cancel Installation

Upgrading to Expanded Memory

Users can field upgrade P500 printers to include Expanded Memory. P600s already have this memory. Only the CPU board of Module 1 (the Print Station board) exhibits improved performance with the Expanded Memory installed. The Memory Extension Board plugs into the CPU board of Module 1. Access to this board requires removal of the rear printer case assembly.

Avoid unnecessary risks! Removal of the Rear Case of the printer exposes Circuit Boards that contain a lithium batteries. These batteries operate for long periods of time and, replacements may never become necessary. Anyone replacing these batteries subjects his or herself to the following risk:

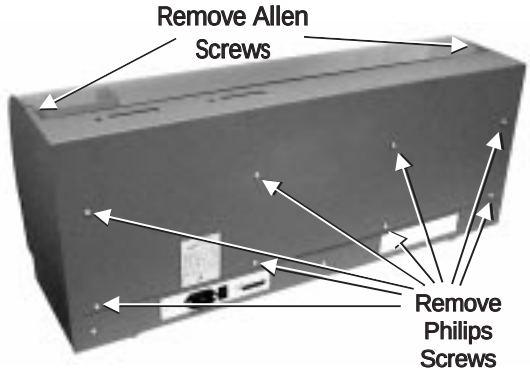
WARNING:

- **A Danger of Explosion exists if a battery is incorrectly replaced.**
- **Replace only with the same or equivalent type recommended by the manufacturer.**
- **Dispose of used batteries according to the manufacturer's instructions.**

Case removal exposes circuit points that, if touched with power on, can present a hazard. Therefore, **never remove any case component without first unplugging the Power Cord.**

Case Removal Step ❶ Using a one-millimeter Allen wrench, remove the two screws holding the top of the case. Then, using a medium Phillips screwdriver, remove the eight screws that secure the back of the case.

Figure 1-6 Screws Holding Rear Case



Case Removal Step ❷ Without letting the rear case move backward from its position while secured, lift the rear case straight up. Wires attached to the switches and LCDs restrict how far the rear case can separate from the printer. Therefore, after freeing the rear case from the printer, rest the rear case at a position that does not stress the wires.

Figure 1-7 Rear Case Removed

Case Removal Step ❸

Removal of the upper Phillips screws frees a bracket. First note the proper position of this bracket, and then remove the bracket. If replaced improperly, the rear case screws cannot be refastened.

Figure 1-8 Bracket Removal

Expanded Memory Board Installation

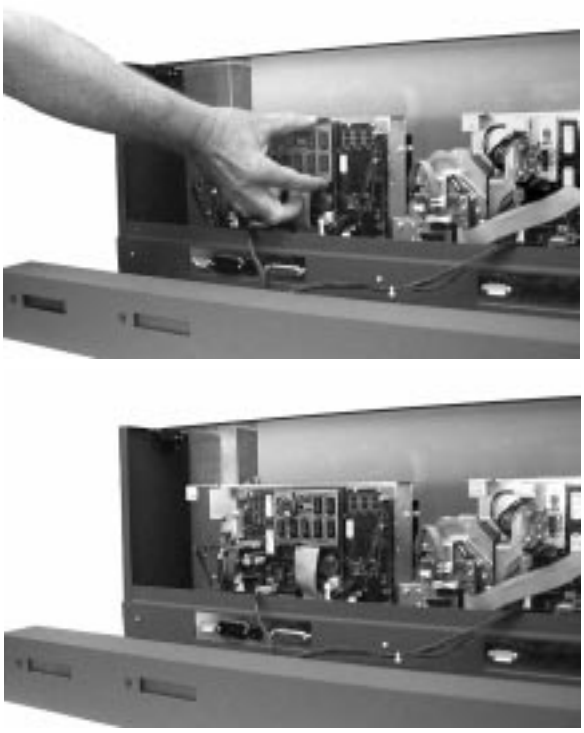
The addition of an Expanded Memory board in Module 1 of a P500 allows the host computer to download all image data in a continuous stream, instead of the single color downloads followed by associated printing that occur without this addition. Multiple-card printing occurs much faster with this option installed. Rear case removal gives access for this upgrade.

Before touching any of the circuit components on either the printer or the Expanded Memory board, be sure to discharge any static charge by touching the metal chassis. Better yet, wear a grounding wrist band.

Installing the Memory Board Step ❶

Plug the Expanded Memory Board into the two connectors on the upper right section of the CPU board of Module 1. Match the connectors such that the Expanded Memory board remains confined within the boundaries of the CPU board, not oriented to extend over the edge.

Figure 1-9 Expanded Memory Installation



Installing the Memory Board Step ❷

Replace the bracket and printer case by reversing the steps performed during their removal.

2
Operation

This section contains information on the operation of the Privilege card printer.

Major Components

Figure 2-1 shows a P600 Card Printer. Note that both models have similar appearances—except, the P500 has a Laminator where the P600 has a second Print Station.

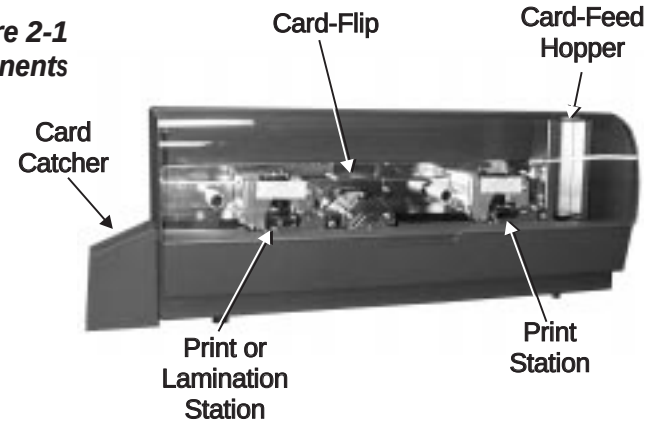


Figure 2-1 Major Components

Controls & Indicators

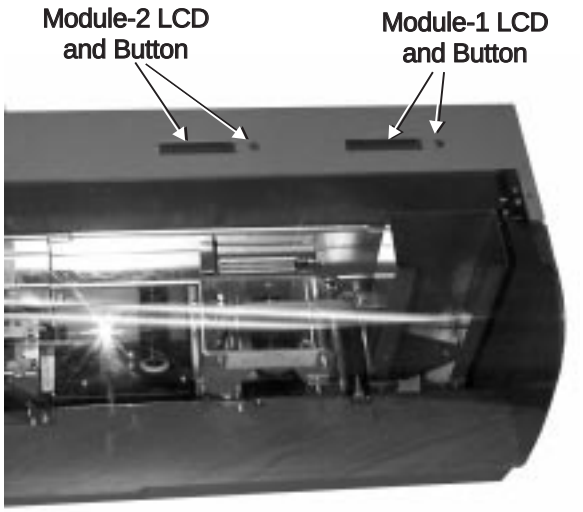
All the card printer controls and indicators, except for the power switch, reside on the top of the printer.

The Power Switch

The **POWER SWITCH** is located on back panel of the printer. Placing the switch in the ON (1) position applies power to the printer. Placing the switch in the OFF (0) position turns off the printer. See Figures 1-1 and 1-2 in Section 1.

The **POWER SWITCH** also works in conjunction with the **Panel Button**. See the **Panel Button** on the following pages.

Figure 2-2 Printer Controls and Indicators



The following LCD messages can appear:

LCD MESSAGES	DESCRIPTIONS	REPORTING LCD		
		Module 1 Print Station	Module 2 Print Station (P600)	Module 2 Lami-nation Station
INITIALIZING	Printer Initializing	•	•	•
WARMING UP	P500 Laminator Wait			•
READY	Ready to Print	•	•	•
PRINTING	Printing in Progress	•	•	
LAMINATING	Lamination in Progress			•
OUT OF RIBBON	New Ribbon Required	•	•	•
OUT OF CARD	More Cards Required	•	•	•
COMMAND ERROR	Command/Parameter Error	•	•	•
MECHANICAL ERROR	Mechanical Problem	•	•	•
ENCODING ERROR	Read Verify Error	•	•	
READING ERROR	Error Reading Mag. Stripe	•	•	
ROTATION ERROR	Card-Flip Error		•	
TEMPERATURE ERROR	Laminator Temp. Wait			•
COVER OPEN	To Proceed, Close Cover	•	•	•

See Appendix A for troubleshooting tips.

Ribbon Preparation

Both the Print Stations and the P500 Lamination Station require the same pre-installation ribbon preparations. To prepare a ribbon, the taped end must be refastened to an empty core. Eltron recommends the following:

Figure 2-3 Ribbon and Empty Core

Ribbon Preparation Step ❶

Place both the ribbon and an empty core on end, next to one another, and touching. For Lamination ribbons, the notched end of the empty core must face up.

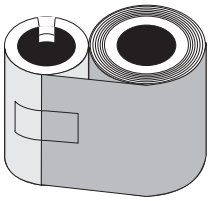
Ribbon Preparation Step ❷

Untape the end that fastens the ribbon end to the roll while leaving the tape attached on the supply side.

Ribbon Preparation Step ❸

Unwind enough ribbon to reach the empty core and tape the end down. If both the ribbon roll and the empty core are kept touching while the tape is refastened, ribbon should be centered on the core. An improperly prepared ribbon can result in wrinkling in the printer during ribbon advances.

Figure 2-4 Ribbon Preparation



Ribbon Preparation Step ❹

Wind one or two turns of ribbon onto the ribbon core.

Ribbon Loading

Ribbon loading involves the placement of the prepared ribbon onto the Supply and Take-up spindles. Similar procedures apply to Print Stations and Laminators, as follows:

Ribbon Loading Step ❶

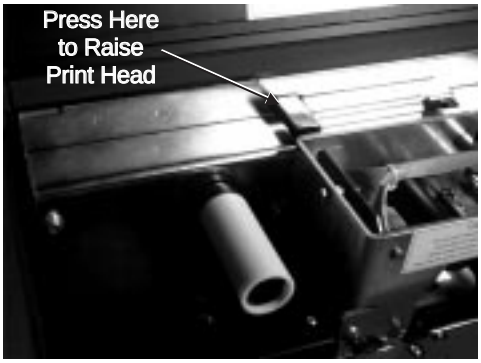
Lift open the cover.

Figure 2-5 Raising the Cover

Ribbon Loading Step ❷

Press down on the Print/Lamination Head Release Latch to raise the Print Head. The Print Head springs upward when released.

Figure 2-6 Raising the Print Head



DO NOT TOUCH the Print Head or nearby electronic components. Discharged electrostatic energy from a person's body or from equipment can damage or destroy print heads and other printer components.

At this point consider interrupting ribbon installation to perform a cleaning, as described further on in this section. At the very least, wash off any buildup on the Cleaning Rollers.

Ribbon Loading Step ❸

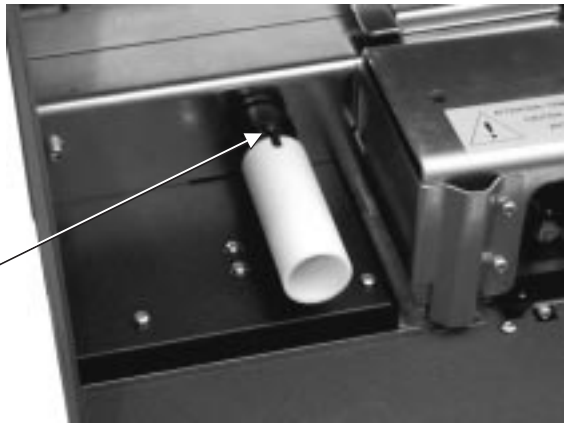
Using a prepared ribbon, unroll a comfortable amount from the supply side to span the distance between the Supply and Take Up spindles. Then, at the same time, slide the Supply and Take Up Cores onto their respective spindles.

Make sure to push both fully onto the spindles. Also make very sure that the ribbon comes off of the top of the Supply Spindle and feeds onto the top of the Take Up Spindle.

Note that for proper seating the take-up cores of Lamination Ribbons have a slot that must align with a screw on the take-up spindle.

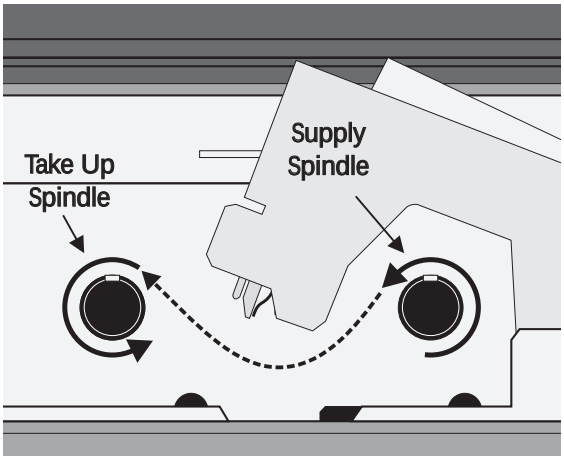
Take extra care when installing a Print Station ribbon. Printing with a reversed ribbon can damage the Print Head or make an extensive cleaning necessary.

Figure 2-7 Laminator Take Up Ribbon Core Alignment



Ribbon Loading Step ❹ Push down the Latch-Down lever until an audible click occurs at the latched-down position.

Figure 2-8 Ribbon Path



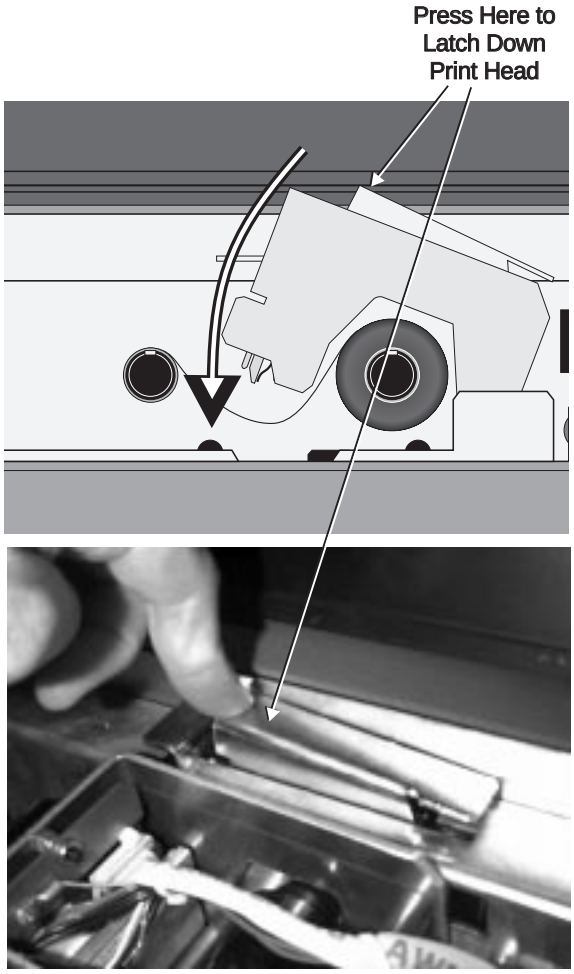


Figure 2-9
Latching Down
Print Head

Ribbon Loading Step ❺

Initialize ribbon—after changing or replacing ribbons or following a Mechanical Error. Use the button closest to the Station getting new ribbon or reporting an error. To initialize:

Color Ribbon - Press and hold the Panel Button until ribbon advances. Ribbon should stop with the Print Head between a clear and a yellow panel.

Black Plus Overlay Ribbon - Press and hold the Panel Button until the ribbon advances. The ribbon should stop with an overlay panel centered at the print head.

Monochrome Ribbon - No initialization required.

Hologram Ribbon - No initialization required for ribbons that have no hologram placement requirements and no index marks.

P500 Lamination Ribbon - Press and hold the left panel button until ribbon advances. Only ribbons with die-cut panels require Initialization. Ribbon should stop with a black index mark located to the right of the Lamination Head.

Handling the Media

Maintain a clean and nearly dust free environment in media storage areas. Dust, body oils and acids (e.g., finger prints) and other foreign materials encountered while unpacking or handling of the printer and media can have an adverse affect on card images.

Cards just removed from the media packaging typically have accumulated an electrostatic charge. Electrostatic charges can cause cards to stick together, making card feeds difficult. Card shuffling can reduce some of this adhesive force. However, avoid bending the card media or touching the card surfaces that will receive images.

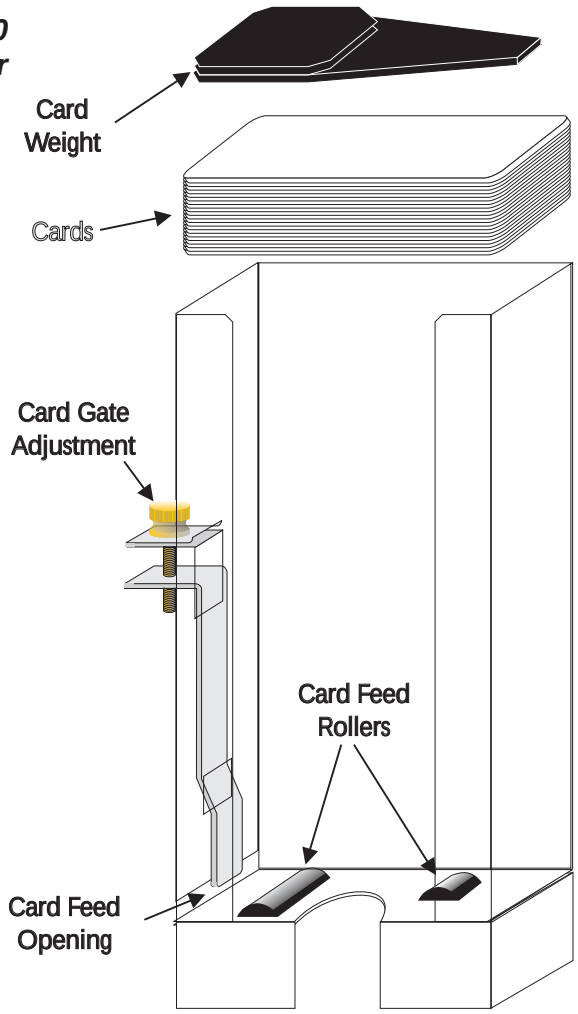
DO NOT set unprinted cards on dust or lint carrying surfaces, i.e., table tops, cloth, computers, etc..

DO NOT place media with magnetic stripes on or near magnetic sources, such as: monitors, non-electronic phones, paper clip holders, speakers, etc.

Card Gate Adjustment

The Card Gate serves to meter card feeds so that only one card feeds at a time. If more than one card feeds, a card jam occurs. Each card thickness requires a different Card Gate opening. Never intermix cards with different thickness in the Card Feed Hopper. Only use 0.030-mil cards in P500s

Figure 2-10
Card Hopper



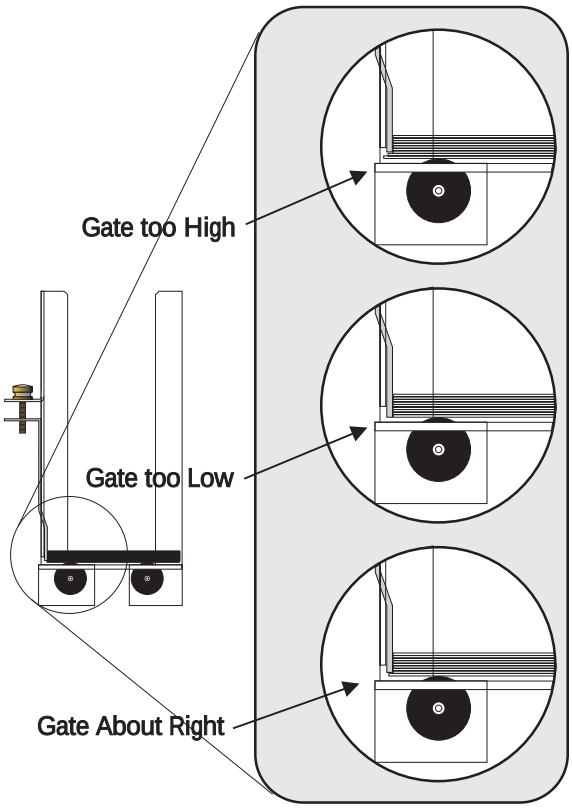
Prevent Media Jams!

Adjusting the Card Feeder is critical for proper mechanical operation of the printer.

Card Gate Adjustment and Media Loading Step ❶

Place a single card of the desired thickness into the Card Feeder. Open the Card Gate (turn the gate adjustment knob clockwise) until the end of the card can fit under the gate.

Figure 2-11 Card Gate Adjustment



Card Gate Adjustment and Media Loading Step ❷

With a single card end just under the gate, turn the adjustment knob counterclockwise to lower the gate to the point the gate just contacts the card. Note that any further lowering pivots the other end of the card off of the right feed roller. Turn the knob clockwise a quarter turn to add some space between the gate and the card.

Card Gate Adjustment and Media Loading Step ❸

Place a second card on top of the first. Without bending or deforming the cards, try to slide both cards through the gate, If only the lower card fits, the adjustment should suffice. If both cards fit under the gate, either lower the gate slightly or repeat the previous steps.

Card Gate Adjustment and Media Loading Step ❹

Add cards of the same thickness to the Card Feed hopper sufficient for the printing needs and place the Card Weight on top of the stack. During the first few print cycles, watch for card jams or feed failures. Alternately, send a Card Feed command to check for proper feeds, as follows:

From the Windows Driver (See Appendix C), type:

ME↵

where:
↵ = Enter

From WindCard (See WindCard manual), Select Printer Tools. In the Printer Tools dialog box Enter:

ME↵

Printer Access and Usage

The printer requires at least three (3) inches of free space around all sides for access to printer controls, card input, and card output.

Do Not Operate Printer with Cover Open.

To maintain a clean printing environment and to prevent ESD damage, keep the cover of the printer closed except during maintenance and media loading procedures. An interlock prevents card flips with the cover open.

With a fixed amount of space available, the maximum number of cards the Card Feed hopper can hold varies as a function of card thickness, as follows:

- 100 of the 30-mil (0.762 mm) cards
- 150 of the 20-mil (0.508 mm) cards

Note that P500s can only laminate 30-mil cards.

The Card Catcher tray begins spilling cards onto the surface below after collecting the following:

- 50 of the 30-mil (0.762 mm) cards
- 75 of the 20-mil (0.508 mm) cards

Figure 2-12 Card Catcher Tray

Printing

When the ribbon and card media are loaded as previously described, and the printer power is on, the card printer is ready to print.

Printing requires the WindCard™software, (a Windows™ software program), the Windows™ printer driver, or direct printer command level programming through the printer interface.

Printing a Test Card

The printer prints a Test Card if the Right (Module 1) Panel Button is pressed and held in while printer power is turned on. The button can be released when SELF TEST appears on the LCD. Remember to synchronize the ribbon for any color printing.

P500s print and then laminate. The information that appears on the card applies to Module 1. P600s print on both sides—each module images a different surface. Module 1 information appears on one side, and Module 2 information appears on the other.

Figure 2-13 Color Printer Test Card

P500 Print Station Test Card | P500 Lamination Station Test Card | P600 Station Test Card

Adjustments

The card printers have no user adjustable features except for the card gate adjustment, see preceding pages.

Protect Your Factory Warranty!
Neglect in performing recommended cleaning procedures can void your warranty, as can improper packaging and shipping.

Other than the recommended cleaning procedures described in this manual, only allow Eltron factory authorized technicians to service Privilege printers.

NEVER loosen, tighten, adjust, bend, etc. any part or cable inside the printer.

The only user adjustable features of the Privilege card printers are made in software (or programming) and the card feeder gate adjustment.

Physical Processes

A sensor signals when the feeder rollers deliver a card to the card transport rollers. Cleaning Rollers remove dust or lint, and transport rollers accurately position the cards for printing, lamination (P500), Smart Card Contact Station docking (optional), and magnetic stripe encoding (also optional).

The print and laminator head(s) lower to the surface of the card for printing or lamination. Printing occurs with ribbon movement and card movement synchronized. After the completion of operations at one station, cards move on to the next station. Cards eject after all specified card operations have occurred.

Color Dye Sublimation

Color imaging involves three passes of cards under a print head. Yellow, magenta, and cyan dyes diffuse from corresponding ribbon panels onto the cards in measured quantities for each dot of a 300 dpi matrix. Each ribbon panel can produce 32 dye densities on a dot-by-dot basis. Therefore, the range of colors for each dot is 32.7K.

Gray-Scale Dye Sublimation

Gray scale imaging involves a single pass of cards under the print head. Measured quantities of black dye diffuse from the ribbon onto the cards on a dot-by-dot basis. Each card dot can have 32 different densities.

Resin Thermal Transfer

Monochrome ribbons and the monochrome panels of multiple-panel ribbons produce solid imaging by transferring a very durable resin material onto cards. Resin either transfers or not on a dot-by-dot basis. Unlike dye sublimation, no in-between conditions exist to produce a gray scale within each dot. Particularly Bar Codes, but also Text, Lines, and Rectangles often get composed using solid images. Also Thermal Transfer ribbons come in a variety of colors other than black. However, bar code readers need black bar codes.

Overlay Varnish Thermal Transfer

Ribbons with Dye Sublimation panel(s) typically also have an Overlay Varnish Thermal Transfer panel. These include YMCKrO, YMCKrOKr, and KsO ribbons. Both color and gray-scale dyes fade with exposure to ultraviolet radiation. A coating of overlay varnish gives images a much longer life. Notably, only dye sublimation images require this protection. Resin images hold their color without the protection of overlay varnish. P500 Overlaminate ribbons with die-cut patches or transfer mate-

rial also deposit a card coating that adds ultra-violet protection and an even longer card life than overlay varnish.

Print Sequence

For P500 printers without Expanded Memory, the typical print sequence for YMCKrO Ribbons proceeds as follows:

- Printer ribbon synchronizes to the yellow (Y) ribbon panel prior to printing. If not, press the RESET button to re-synchronize.
- Card-feed rollers deliver a card to the transport rollers, which accurately position cards for all subsequent printer operations.
- Data for Yellow (Y) imaging downloads.
- Yellow Printing occurs.
- Card moves back, and ribbon advances to next panel.
- Download, print, return card, and synchronize steps occur for ribbon panels Magenta (M), Cyan (C), Black Resin and Overlay.
- For duplex (two-sided) card printing, cards move to the card-flip, where the lower side transfers to an up-facing side. P500 cards return again to the print head of the first station for a repeat of the imaging sequence. Often, only black resin (say for a bar code) gets applied on the second side. The YMCKrOKr ribbon offers an economical choice for those with this requirement.
- After imaging, P500s send the cards to the Laminator station through the Card-Flip. There, either a die cut patch or a lamination material is applied to the up-facing side. P500s only support single-side lamination using the included software. However, the

Card-Flip can present either side to the Laminator.

- When these processes end, along with any Smart Card programming or Magnetic Stripe encoding, a card ejects.

Data downloading is the only difference between a P500 with Expanded Memory and one without. The extra memory makes possible reception of an uninterrupted string of data commands prior to any imaging. With all necessary data resident in printer memory, imaging speed increases. A significant improvement occurs for multiple copy printing.

Because of their dual print stations, P600s offer a great deal of versatility in choosing their operations. Users should explore the possibilities by selecting the command sequence that best suits their requirements. After mapping out planned imaging, decide which ribbons best suit these requirements. Then, decide where the ribbons should be installed for best performance. Finally, refer to the Programmer's manual for commands that implement the desired operation. Remember to integrate any Smart Card docking or magnetic stripe encoding into the command sequence.

Cleaning The Printer

For quality card images keep the printer dust and lint free. Any particles left on mechanisms in the card path can migrate onto cards and interfere with both YMC dye sublimation and resin thermal transfer. These ribbon materials cannot penetrate particles left on the cards. The frequency of cleaning required varies, depending on the print environment and the usage.

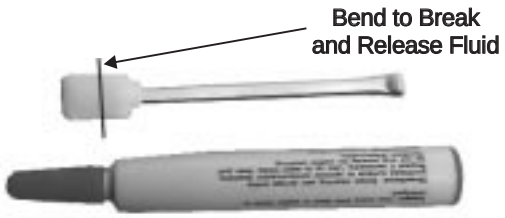
Never use a shop air compressor to blow away particles in the printer. Air compressors can contain rust-inhibiting oil and may have ineffective moisture traps. Oil and moisture adversely affect print quality, and when sprayed, may spread contaminates throughout the printer.

Also canned air requires a very careful usage. Avoid directing an air stream in a way that distributes particles from areas having a significant particle contamination.

Any vacuum used must have its outflow well filtered and directed away from the printer. Never attempt to vacuum particles off of the Print Head, as damage to delicate imaging elements can result.

Eltron offers the following items for cleaning the printer:

- Disposable, Clean Non-fibrous (foam) swabs with alcohol filled handle for head cleaning and suitable for roller cleaning
- An alcohol filled, felt pen suitable for roller cleaning



- A Cleaning Kit comprised of a spray can of alcohol and a package of cleaning cards suitable for a general cleaning but required for Magnetic Encoder head cleaning.

Cleaning products for the Privilege card printer are available directly from your Eltron distributor or call Eltron at **(800) 344-4003** for the distributor nearest you.

Alternate cleaning materials can include the following:

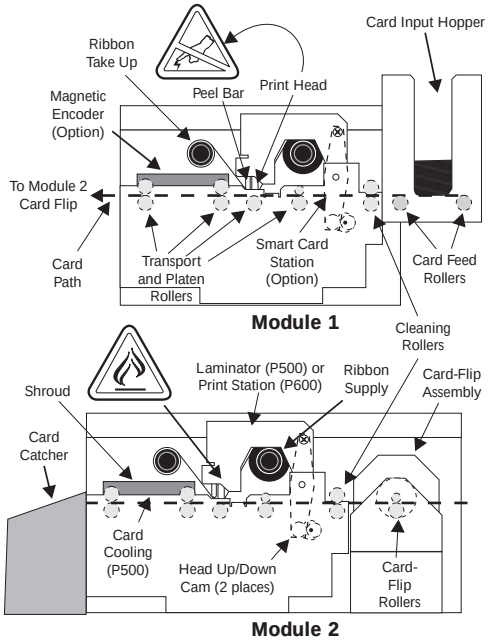
- Foam swabs (never use cotton or any other fibrous material.)
- 99% pure or better Isopropyl Alcohol for moistening swabs
- Clean Running Water (Used for Upper Cleaning Roller only).

Card Path Elements

The following figure shows the elements in the card path that require a periodic cleaning. Procedures follow for the following items:

- Card Guides, Smart Card Contact Station, and Magnetic Encoder Read-Write heads.
- Card Feed Roller
- Cleaning Rollers
- Print Head
- Transport and Platen Rollers

Figure 2-14 Media Path



When To Clean

Cleaning frequency varies with different environments. Typically, cleanings that follow ribbon depletion keep the card printer operating properly. If not, consider either another printer location or a more frequent cleaning.

Cleaning Stationary Card Path Items

Items in the card path that cannot be reached directly require a cleaning using the alcohol-moistened cards of the Cleaning Kit. Encoder Read-Write heads require this kind of cleaning.

Using the Cleaning Kit Step ❶

Remove the ribbon from both the Supply and Take Up spindles. See Ribbon Loading in this section.

Using the Cleaning Kit Step ❷

Moisten a Cleaning Card by spraying with alcohol. Saturate the card, but if alcohol drips from the card, blot away the excess.

Using the Cleaning Kit Step ❸

Place the moistened Cleaning Card in the Input Tray, topped with the card weight. If necessary, adjust the Card Gate for the card thickness. (Since this procedure calls for only one card, you can open the gate as much as you like.)

Using the Cleaning Kit Step ❹

Send the Cleaning Card through the printer several times without enabling printing. Depending on the setup, use one of the following:

Where:
SPACE = Space
↵ = Enter

Entry is either via WindCard™ (see manual) or The Windows Driver (see Appendix C).

The following command shuttles a Cleaning Card from the Input Hopper to the Card Catcher:

ME↵

For best results, shuttle a card five or more times.

Cleaning the Card-Feed Roller

Card Feed Rollers that fail to grip the cards can impede the even delivery of cards to the transport rollers. To clean the Card-Feed Rollers, proceed as follows:

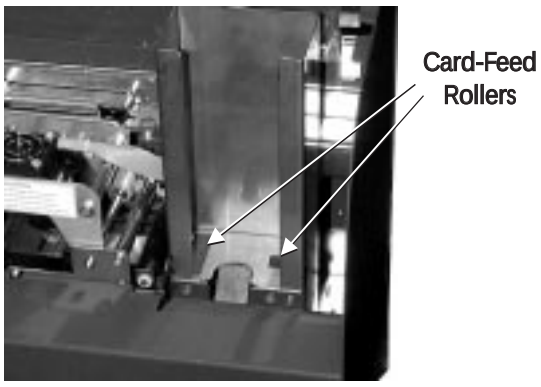
Cleaning the Feeder Rollers Step ❶

Remove any cards from the Card Hopper.

Cleaning the Feeder Rollers Step ❷

Clean the rollers using a Swab or Cleaning Pen. To gain access to initially unexposed areas, cycle the roller by applying the printer power while holding the Panel Button on for three (3) seconds (see Test Card sequence in preceding description) Let the roller air dry for two (2) or more minutes.

Figure 2-15 Card-Feed Rollers



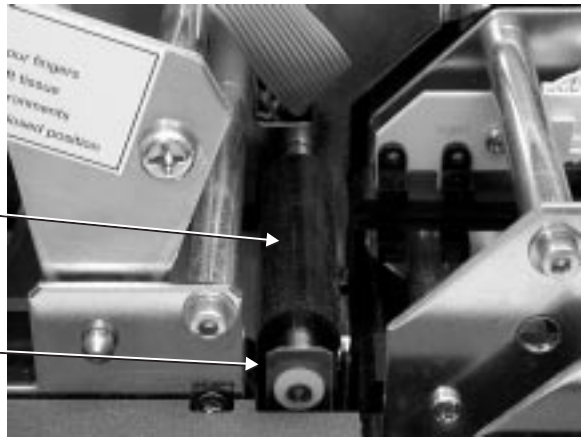
Cleaning the Upper and Lower Cleaning Rollers

These rollers receive cards fed from the Input Hopper and Card Flip. The upper roller has a coating that collects any loose particles on the surface of cards. Note that these rollers exist in Module 1 just after the Card Feed Hopper and in Module 2 just after the Card Flip.

Cleaning the Cleaning Rollers Step ❶

Remove any cards from the printer. Open the printer cover. To free an Upper Cleaning Roller, gently pull the Spring Clip clear of the Upper Cleaning Roller pin. Then, remove the Upper Cleaning Roller.

Figure 2-16 Upper Cleaning Roller



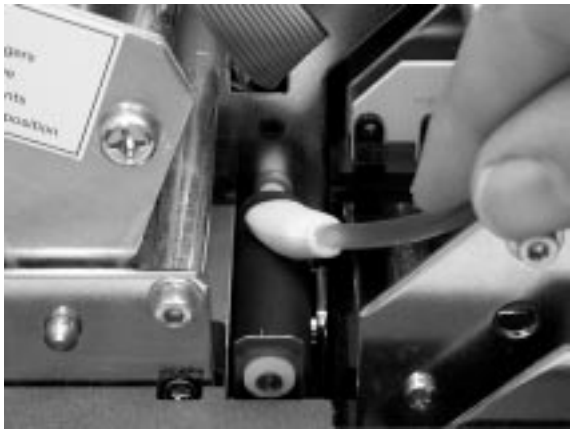
Cleaning the Cleaning Rollers Step ❷

Clean the Upper Cleaning rollers with running water. Then allow the rollers to air dry without resting the rubberized part on a surface.

Cleaning the Cleaning Rollers Step ❸

Use a swab or cleaning pen on the Lower Cleaning Rollers. Cycle the rollers by applying the printer power while holding the Panel Button on for three (3) seconds to expose initially unexposed areas. This is the Test Card sequence described in Controls and Indicators, Section 2.

Figure 2-17 Lower Cleaning Roller



Cleaning the Cleaning Rollers Step ❹

Reinstall the Upper Cleaning Roller. First slide the shaft pin into the hole in the chassis opposite the Spring Tab.

DO NOT touch the roller surface that contacts the media.

Snap the opposite shaft pin of the roller into the hole on the Spring Tab.

Without touching the body of the roller, make sure the roller locks in place. To avoid contamination, always hold the roller by the metal ends.

Print Head Cleaning

During printing, the ribbon(s) isolate the Print Head(s) from the cards. Therefore, the ribbon has the greatest influence on Print Head contamination. An improperly installed ribbon, with the dye and resin coatings facing the Print Head can cause permanent damage. No amount of cleaning can remove dye or resin fused onto delicate Print Head elements.

Print Head Cleaning Step ❶

Turn the printer power OFF. Open the cover, raise the print head, and remove the ribbon from both spindles. See Ribbon Loading, in this Section.

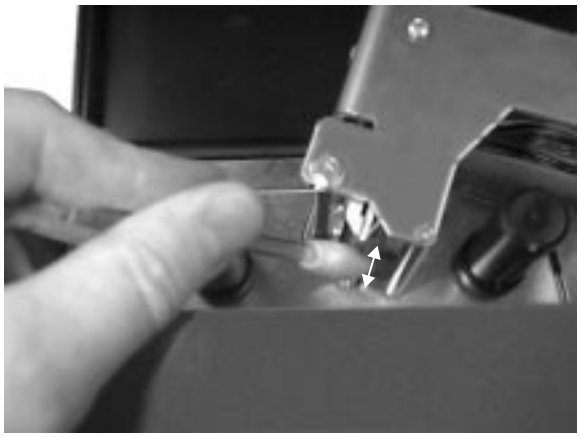
The print head should only be cleaned with a solution of 99% pure Isopropyl Alcohol and a clean non-fibrous (foam) swab.

Avoid touching the Print Head elements. The release of Static charges can damage the Print Head elements and Internal circuits.

Print Head Cleaning Step ❷

Gently rub an alcohol-moistened swab across the print head from the front to the back of the printer. **Do Not Soak the Print Head.**

Figure 2-18 Cleaning Print Head



Allow the print head to dry for 2 minutes before reloading the ribbon and core.

Initiate a Test Card sequence. See Printing a Test Card in this section.

Cleaning the Transport and Platen Rollers

Along with the Cleaning Rollers, these rollers move the cards between the Input Hopper and Card Catcher. Except for the Platen, these rollers operate in pairs—a lower drive roller and an upper pinch roller that holds cards against the drive roller.

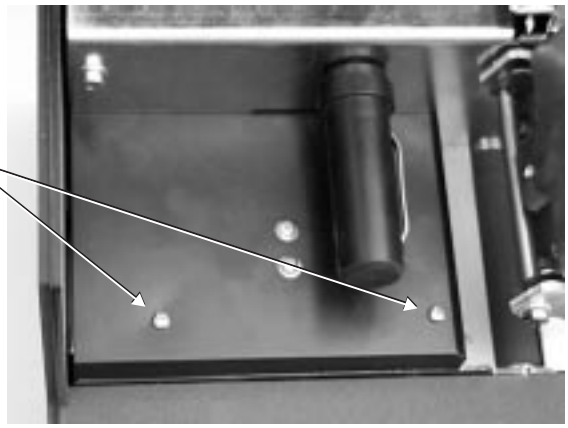
Cleaning Platen and Transport Rollers Step ❶

Open the Cover, and unlatch and raise the Print and Lamination Heads, Remove any ribbon. Note that all associated instructions appear in previous descriptions.

Cleaning Platen and Transport Rollers Step ❷

Remove the Shrouds that cover the associated transport rollers. Note that two screws hold each Shroud in place.

Figure 2-19 Encoder Shroud



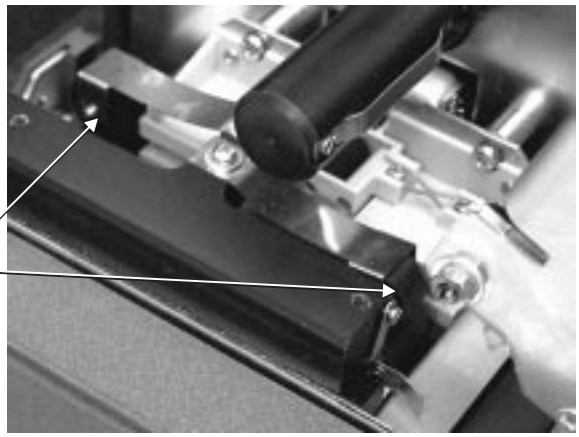
In the following steps, cycle the rollers to reach initially unexposed areas by applying the printer power while holding the Panel Button pressed for three (3) seconds. This is the Test Card sequence described in Controls and Indicators in this section.

In the following steps, avoid touching the Print Head. A static discharge can damage delicate Print Head elements as well as internal circuits.

Cleaning Platen and Transport Rollers Step ❸

Using an alcohol-moistened Swab or a Felt Pen, clean the two sets of rollers exposed with removal of the Shrouds. Note that these appear under both Shrouds in P600s.

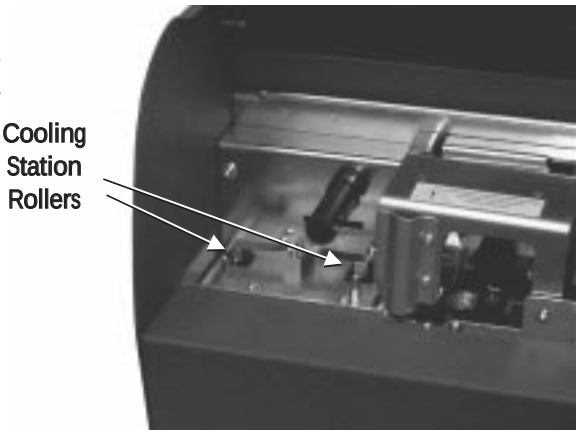
Figure 2-20 Encoder Transport Rollers



Cleaning Platen and Transport Rollers Step ❹

Using an alcohol-moistened Swab, clean the Cooling Station Roller (P500 only).

Figure 2-21 Cooling Station Rollers



Cleaning Platen and Transport Rollers Step ❺

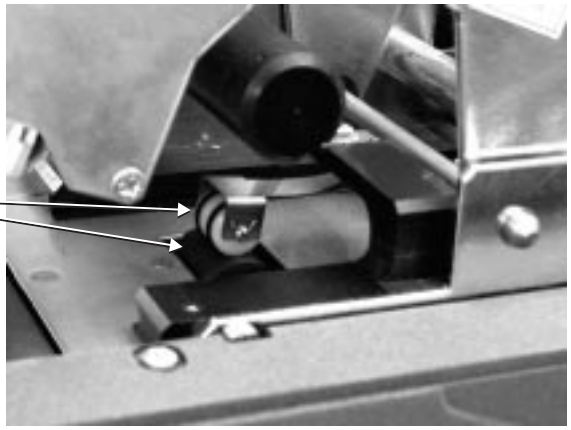
Using an alcohol-moistened Swab, clean the Platen Roller.

Figure 2-22 Platen Roller

Cleaning Platen and Transport Rollers Step ❻

Using an alcohol-moistened Swab, clean the roller pair under the Print Head

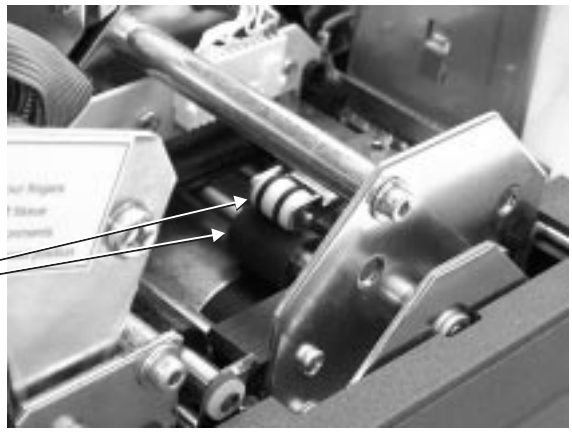
Figure 2-23 Print Station Rollers



Cleaning Platen and Transport Rollers Step ❼

Using an Alcohol-moistened Swab, clean the Card-Flip Rollers.

Figure 2-24 Card-Flip Rollers



Cleaning Platen and Transport Rollers Step ❽

Replace the Encoder Shroud (see Step 2), install, Ribbon, place cards in the Input Tray, and print some Test Cards. Inspect the cards for Print Anomalies. If Anomalies appear, refer to Appendix A, Troubleshooting.

Cleaning Laminator Rollers

The Lamination head has two rollers—an upper heated roller and a lower pressure roller.

Cleaning Laminator Rollers Step ❶

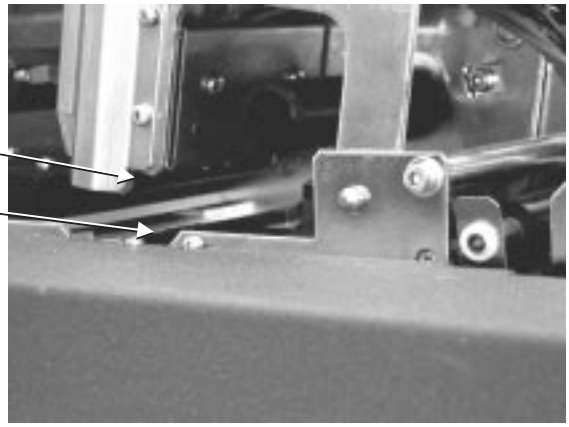
Turn off power, open the cover, and unlatch and raise the Laminator head. This is similar to the Ribbon Loading described in Section 1.

After turning off power, wait about five minutes before cleaning the Laminator rollers. The upper Laminator roller generates a substantial amount of heat with power switched on.

Cleaning Laminator Rollers Step ❷

Using an alcohol-moistened swab, clean both Laminator rollers. The upper roller can be turned manually to reach initially unexposed areas. The lower roller can be turned using the same procedure that produces test cards. (Turn on power while hold in the Laminator button for three seconds) Immediately turn off power to avoid heating the upper roller.

Figure 2-25 Laminator Rollers



3
Magnetic Card Stripe Encoder

This section has information on the additional operation and maintenance requirements of an Eltron Privilege Series card printer with an optional Magnetic Card Stripe Encoder. Eltron offers models for recording on either low- or high-coercivity magnetic card stripes.

Introduction

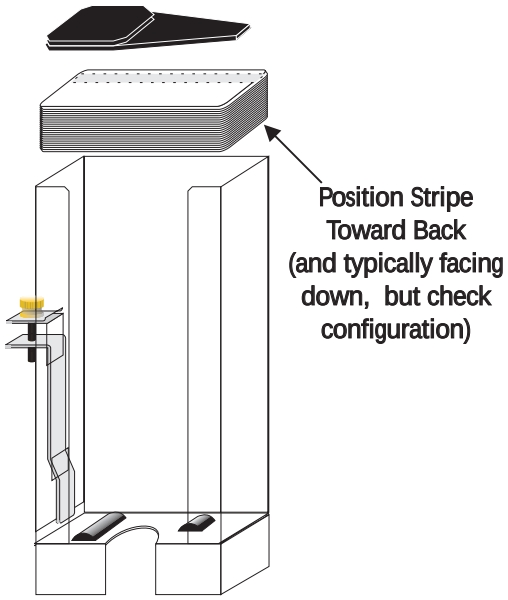
The general operation of a printer with an encoder option nearly duplicates that of models without this option. P600 Encoders can reside in either Module 1 or Module 2, just past a Print Station. P500 Encoders always reside in Module 1. Encoder installations exist for either up- or down-facing magnetic stripes in both P500s and P600s.

Only use cards with flush magnetic stripes. Never use pasted-on stripes.

Media Loading Orientation

Printers with Magnetic Encoders can have their read/write heads positioned either above or below the path traveled by the cards. All configurations must have the magnetic stripes placed closest to the rear of the printer. However, check the configuration to determine whether the magnetic stripe should face up or face down. Improper hopper loads produce read errors.

Figure 3-1 Magnetic Stripe Position



Ensuring Data Reliability

A read verify pass is always performed on all encoded cards to guarantee data integrity.

Either Software (WindCard™) or command programming controls the Write and Read-verify data processes.

Encoding

With data downloaded, printers with Magnetic Encoders can encode all three magnetic stripe tracks simultaneously. Encoders also support nonstandard track densities and bits per track. After setting read/write parameters, downloads to track buffers occurs, as follows:

where:
ESC = Escape
SPACE = Space
↵ = Return

ESC&B SPACE *track #* SPACE *data*↵

Initiation of simultaneous three-track magnetic stripe encoding then occurs, as follows:

ESC&E*↵

A Programmer's manual describes all the commands including those related to the Encoder (see Appendix B).

The following shows three examples that enter data. initiate encoding, and set up read/write parameters that can be sent from either the Windows™ driver or directly using DOS (e.g., COPY *file name* LPT1) or via a Text Editor and its Print facility (with Privilege Driver selected):

Example 1. Download Data and Encode Card:

Direct Control	Windows Driver
ESC&B SPACE 1 SPACE JOHN DOE↵	~C0&B 1 JOHN DOE
ESC&B SPACE 2 SPACE 555-46-5389↵	~C0&B 2 555 46 5389
ESC&B SPACE 3 SPACE 4789↵	~C0&B 3 4789
ESC&E*↵	~C0&E*

Example 2. Set Read/Write Parameters, Enter Data, Encode Stripe, and Eject:

Command	Result
^c&D^q1^q75↵	Sets track-1 density to 75 bpi
^c&D^q3^q75↵	Sets track-3 density to 75 bpi
^c&CDEW^q1^qa3↵	Sets to encode track 1 with 5-bit characters
^c&CDER^q1^qq3↵	Sets to read 5-bit characters on track 1
^c&B^q1^q12345↵	Enters 12345 in track-1 buffer
^c&B^q2^q54321↵	Enters 54321 in track-2 buffer
^c&B^q3^q09876↵	Enters 09876 in track-3 buffer
^c&E*↵	Encodes three tracks using buffer data, and positions card for printing
^cME↵	Ejects card from printer

Example 3. Reset to ANSI/ISO:

Command	Result
^c&CDEW^q1^qA↵	Resets track-1 encodes to ANSI/ISO std.
^c&CDER^q1^qQ↵	Resets track-1 reads for ANSI/ISO std.
^c&CDEW^q2^qB↵	Resets track-2 encodes to ANSI/ISO std.
^c&CDER^q2^qR↵	Resets track-2 reads for ANSI/ISO std.
^c&CDEW^q3^qC↵	Resets track-3 encodes to ANSI/ISO std.
^c&CDER^q3^qS↵	Resets track-3 reads for ANSI/ISO std.

When to Clean the Encoder

The Read/Write Head and drive rollers of the Encoder require a periodic cleaning to maintain error-free encoding.

The encoder should be cleaned when:

- A “General Cleaning” is performed on the printer.
- The printer’s Drive Rollers are cleaned.
- Write and Read verify process has failed on more than one card. See Appendix A, Trouble Shooting.

Cleaning the Encoder

Turn OFF printer power.

Remove all card media and both the Supply and Take Up spools from the respective ribbon spindles.

Use the Cleaning Kit procedure described in Section 2.

Adjustments

Privilege card printers with Magnetic Card Stripe Encoders have no related user adjustments.

Protect Your Factory Warranty!
Neglect in performing recommended cleaning procedures can lead to problems not covered in the warranty.

Other than the recommended cleaning procedures described in this manual, only allow Eltron factory authorized technicians to service these printers

NEVER loosen, tighten, adjust, bend, etc. any part or cable inside of the printer.

The only user adjustable features of the Privilege card printers are made in software (or programming) and the card feeder gate adjustment.

4
Smart Card Contact Station

This section contains information on the additional operations of card printers with Smart Card contact stations.

Introduction

Smart Cards (ISO7816) have built-in microcircuits. Card memory can store fingerprints, voice recognition patterns, medical records and other such data. Printers can have docking stations installed that can interface with Smart Card circuits. Smart Card programming hardware connects to a DB-9 connector on the rear panel. Configurations with this option respond to commands that position the cards at the docking station, as follows:

Command	Result
MS	Moves card to Contact Station
OS ***value***	introduces offset of *value* dots from Station default (96)

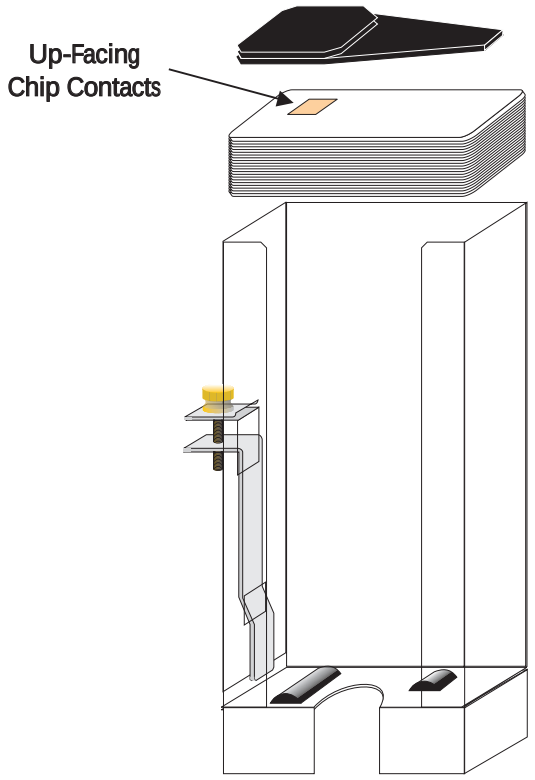
All other printer operations remain the same as those for other Privilege models.

Do not position printing over Smart Card contacts.

Media Loading Orientation

Orient the cards with the Smart Card Chip facing up and such that the edge closest to the contacts feeds first.

Figure 4-1 Card Contact Position



Adjustments

No adjustments exist for Privilege printers with Smart Card programming stations other than the Card Feeder Gate Adjustment described in section 2.

Protect Your Factory Warranty!
Neglect in performing recommended cleaning procedures can void your warranty, as can improper packaging and shipping.

Other than the recommended cleaning procedures described in this manual, only allow Eltron factory authorized technicians to service these printers.

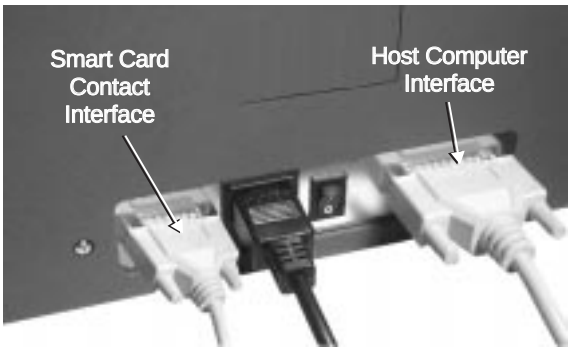
NEVER loosen, tighten, adjust, bend, etc. any part or cable inside of the printer.

The only user adjustable features of these card printers are made in software (or programming) and the card feeder gate adjustment (see Section 2).

Smart Card Chip Interface

When a command to the parallel printer interface sends a card to the Smart Card Programming station, the printer connects the Smart Card Chip contacts to the female DB-9 connector on the rear of the printer. An attached external Smart Card Programmer uses the DB-9 as an interface to Smart Card chip connections.

Figure 4-2 Smart Card Contacts Interface



DB-9 Pins	Smart Card Contact Points
1	C1 (Vcc)
2	C2 (Reset)
3	C3 (Clock)
4	C4 (RFU)
5	C5 (GND)
6	C6 (Vpp)
7	C7 (I/O)
8	C8 (RFU)
9	(GND when chip is at station)

Media Jams Always remove the bottom card of a two-card jam first. Never pull the top card out of the printer. Instead, sequence the printer power with only the top card remaining (the last card to enter the print path). Remove all other cards from the path and card feeder.

Damage may occur to the contacts at the Smart Card chip programmer station if the top (last) card is not ejected by the printer.

Appendix A
Trouble Shooting

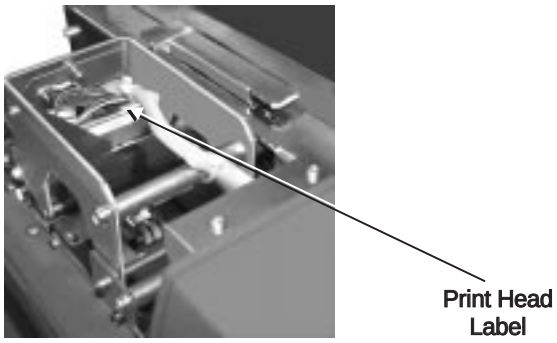
The following lists some common issues that can confront users experiencing problems when using Eltron Privilege Series card printers.

Common Printing Problems Trouble Shooting Guide

Problem	Solution or Reason
No messages appear on LCD.	1. Power Switch OFF (O position): Set switch to ON (1 position). 2. Power Not connected: Check AC cord from the Printer to the outlet power. 3. Tripped Breaker: Check the Fuse/Breaker panel supplying power outlet.
An LCD indicates WAIT TEMPERATURE	1. Too Cold: Associated Print or Lamination Head has not yet stabilized within proper operating range. 2. Too Hot: Associated Print or Lamination Head has exceeded a proper operating temperature—typically due to high volume printing.
Printing appears faded or exhibits poor quality.	1. Clean the print head. 2. Adjust the contrast and intensity in software or with programming. 3. Verify value of related Print Head Resistance does not apply to current print head. Print a Test Card, and compare value with label on related print head.
Parallel “Scratch Lines”, missing image parts	1. Check ribbon 2. Clean Print Head 3. Call technical support

Problem	Solution or Reason
An LCD indicates COMMAND ERROR	Errors Using Windows Driver: 1. Printer Command Coding Error: Clear command error by pressing related Panel Button. 2. Ribbon Error: Press Panel button; note card ejects, if present, and ribbon re synchronizes 3. Feeder Error (empty): Press Panel Button; note that last command repeats using another card. 4. Magnetic Stripe Write Error: Press Panel Button; note that card ejects and command repeats with another card 5. Other Errors: Press Panel Button; note that any card present ejects and error indications cease 6. Check the programming command syntax.
An LCD indicates OUT OF RIBBON	1. Replace used ribbon. 2. Check for broken ribbon
Cards are present, but LCD indicates OUT OF CARD	Card Feed Problem: 1. Card Gate adjusted too low 2. Card Weight not in place. 3. Cards or Card-Feed rollers contaminated with oily deposit and require cleaning
An LCD indicates READING ERROR	Encoder Command Coding Error: 1. Verify command syntax 2. Call technical support 3. Check card Hopper for proper stripe position
An LCD indicates MECHANICAL ERROR	Mechanical Error: 1. Card Jam - Nonmagnetic Encoder: Open cover, remove related upper cleaning roller, empty feeder, pull jammed cards out. Replace upper cleaning roller and run Test Card RESET. Cycle power off and on. 2. Card Jam - Magnetic Encoder Models: See Section 3, Clearing Media Jams. 3. Card Not Feeding completely through printer. Release Print Head latch and run Test Card RESET, Cycle power off and on.

Problem	Solution or Reason
LCD indicates COVER OPEN	Close the cover so that card flips can occur
Printer cuts (melts) through the transfer ribbon. The ribbon is advancing at the same rate as the card media.	1. Reinstall the ribbon. 2. Synchronize the ribbon panels by pressing the related Panel button until the ribbon starts advancing. 3. Verify proper (or default) print settings in software. 4. Verify the proper ribbon/panel combination are selected in the software or programming sent to the printer. 5. Verify that the print heat (resistor) is set to the correct level in the WindCard software, Windows color printer driver or by programming commands sent to the printer. Print a Test Card and note the resistance/heat setting. Verify the card values match those that appear on the print head label. (See following illustration.)
Ribbon breaks during re-synchronization of the color ribbon panel.	1. Raise the related Print Head and synchronize the ribbon. *The previous print process may have been interrupted during the print process.*
Voids on printed card, varies from panel to panel.	1. Clean the Cleaning Roller 2. Complete all cleaning procedures
Voids on printed card, same for all card panels	1. Check Card surfaces for smoothness, flatness or edge burrs If necessary, get new cards. 2. Use approved media.



Other Support Resources

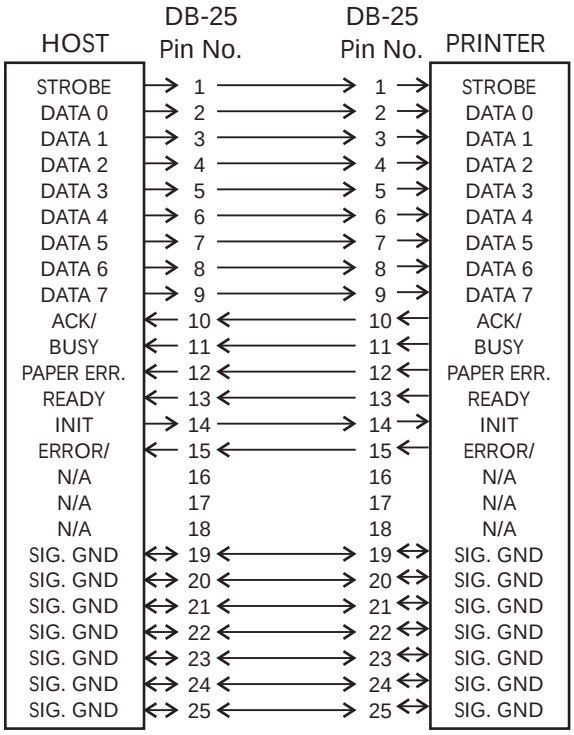
First attempt a repair using the forgoing table, Then, if necessary, contact the dealer that sold you the printer.

Eltron International also offers a variety of information and user support services, as follows:

- ***Internet***:
  http://www.eltron.com
  ftp://ftp.eltron.com
  e-mail:
  Label Printers: techsup@eltron.com
  Card Printers: privsup@eltron.com
  Europe: eurosup@eltron.com
  Singapore: asiasup@eltron.com
  Latin America: latinsup@eltron.com
- ***BBS***: +1 (805) 579-3445
  The BBS supports data rates up to 28.8 BPS with No Parity, 8 data bits, and 1 stop bit (n,8,1). Communications software should have an ANSI Terminal Mode (not MS Windows Terminal) such as Q-Modem.
- ***CompuServe e-mail***: 102251,1164
- ***Customer Service***: +1 (800) 344-4003
  For the name of a dealer in your area.
- ***Technical Support FAX:***
  U.S.A.: +1 (805) 579-1808
  Asia: +65 73 38 206
  Europe: +44 (0) 1189 895 762
  Latin America: +1 (847) 584 2725
  For your assistance and support with Eltron printers and software.

Parallel Interface Cable Wiring

The following diagram shows the cable wiring required to use the printer's parallel interface.


HOST
DB-25 Pin No.
DB-25 Pin No.
PRINTER
STROBE 1 1 STROBE
DATA 0 2 2 DATA 0
DATA 1 3 3 DATA 1
DATA 2 4 4 DATA 2
DATA 3 5 5 DATA 3
DATA 4 6 6 DATA 4
DATA 5 7 7 DATA 5
DATA 6 8 8 DATA 6
DATA 7 9 9 DATA 7
ACK/ 10 10 ACK/
BUSY 11 11 BUSY
PAPER ERR. 12 12 PAPER ERR.
READY 13 13 READY
INIT 14 14 INIT
ERROR/ 15 15 ERROR/
N/A 16 16 N/A
N/A 17 17 N/A
N/A 18 18 N/A
SIG. GND 19 19 SIG. GND
SIG. GND 20 20 SIG. GND
SIG. GND 21 21 SIG. GND
SIG. GND 22 22 SIG. GND
SIG. GND 23 23 SIG. GND
SIG. GND 24 24 SIG. GND
SIG. GND 25 25 SIG. GND

Female DB-25 to Male DB-25

Supported Card Media and Ribbon

The card printers support a wide variety of card media and ribbon types. The card media should be matched to the ribbon type to avoid ribbon burning, sticking and to achieve proper dye sublimation. For optimum performance and printer (Print Head) life, always use Eltron approved card media and ribbons.

Card Media

CR-80 credit card style cards (ISO 7810) made of PVC (recommended) or Polyester ABS card materials. Some card manufacturing processes use a thin, clear over-lamination.

Magnetic (Mag.) Stripe Card (ISO 7811)

Smart Card with ISO 7816 Chip, With AF-NOR Chip, or a combination of the Magnetic Stripe on one side and one of the Chip versions on the other side.

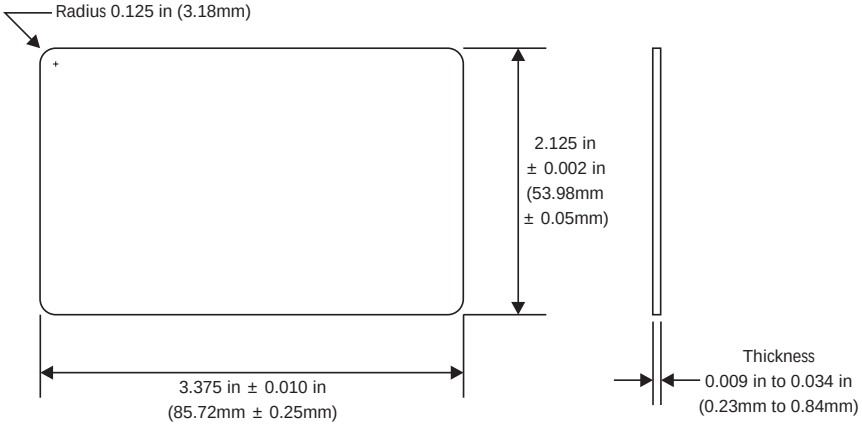
Ribbons

Eltron Privilege card printers require Eltron approved ribbons. Eltron's resin thermal transfer and die sublimation media are specifically designed for Privilege card printers. (See Appendix B.)

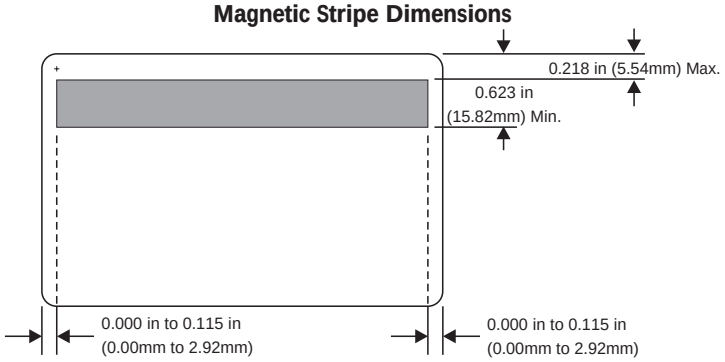
Thermal Transfer (Resin) - All print stations can use Thermal Transfer ribbon. Resin offers more durability than dye sublimation, with greater resistance to scratches and UV-induced fading.

Dye Sublimation - Printing requires dye sublimation ribbons with either black or Cyan (C), Magenta (M) and Yellow (Y) panels. These ribbons have Overlay varnish panels to add UV protection and durability. Color ribbons have black thermal transfer resin panels for bar code and other solid imaging.

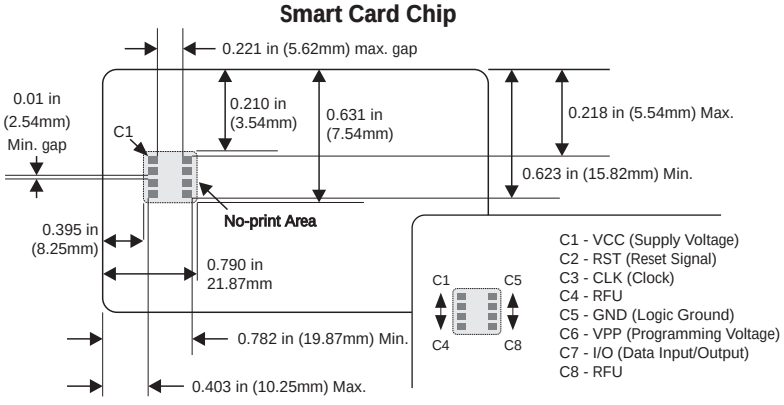
Card Dimensions



Magnetic Stripe Dimensions



Smart Card Chip



Printer Features and Options

The Privilege card printer series are part of Eltron's personal and industrial printer family. A Privilege card printer prints on standard credit card size cards. These color printers can produce images using either dye sublimation and/or thermal transfer (monochrome) modes. This list only serves as a reference. Consult the latest Data Sheet.

PRIVILEGE SERIES CARD PRINTERS

Print Resolution
- 300 dots per inch (11.8 dot per millimeter)

Printing Technology
- Monochrome - Thermal Transfer
- Color - Dye Sublimation

Print Time
- Typically 3 seconds per card (monochrome)
- Typically 45 seconds per card (color)

Print Speed
- 0.5 ips

Font Support
- Arial 22 Bold and Arial 28 Normal
- True Type fonts with the WindCard™ or Windows™ compatible printer driver to access Windows™ resident fonts.

Bar Code Symbologies
- Code 39 (3 of 9)
- Interleaved 2 of 5 (I-2/5)
- Standard 2 of 5 (2/5)
- EAN 8
- EAN 13
- UPC A
- MONARCH
- Code 128 subsets B with or without Check Digit
- Code 128 Subset C with or without Check Digit

Card Types - ISO Format
- CR-80 - ISO 7810
- Option; Magnetic Stripe - ISO 7811
- Option: Smart Card - ISO 7816
- PVC (recommended), PVC w/Polyester core, ABS card materials

Magnetic Encoding - Option
- 3 tracks
- 3 Media Recording Densities:
  Low Coercivity, 300 Oersteds
  Medium Coercivity, 2750 Oersteds
  High Coercivity, 4,000 Oersteds
- Supports recording formats: ITA, ABA and Thrift.

Smart Card - Option
- Supports ISO 7816 Smart Card standards

Card Dimensions
- Thickness -
  Monochrome - 10 mil to 40 mil
  (0.254 mm to 0.762 mm)
  Color - 20 mil to 30 mil
  (0.508 mm to 0.762 mm)
- Standard Card Thickness:
  0.020" (0.508 mm)
  0.024" (0.610 mm)
  0.030" (0.762 mm)
- Width - 3.375" (85.6 mm) typical
- Length - 2.125" (53.98 mm) typical

Card Feeder
- Stacks up to 150, 20 mil cards
- Stacks up to 100, 30 mil cards

Power Requirements
- 100/120//230/240 VAC, 50-60 Hz

Operating Temperature-
- 40 to 104 degree Fahrenheit (mono.)
- 60 to 86 degrees Fahrenheit (color)

Dimensions-

Without Card Catcher:

- 30.5 in W x 12.5 in H x 10.1in D (775mm W x 320mm H x 258mm D)

With Card Catcher:

- 34.6 in W x 12.5 in H x 10.1 in D (880mm W x 320mm H x 258mm D)

Weight

Basic Unit:

- 61.7 lb (28.1 kg)

Shipping:

- 72.7 lb (32.9 kg)

Appendix B Supplies and Accessories

Contact your Eltron dealer when placing an order for any of the following:

Accessories

Accessories available for the Privilege card printer are listed below. Always refer to the ELTRON part number when placing an order.

Description	Part Number
Card Printer Parallel Interface Cable, 6' (DB-25 male to DB-25 female)	300055-001
Windows™ Printer Driver WindCard™ Classic Software, and Manual	205585-001 105525-004
User's Manual (this Manual) Programmers Manual	980179-001 980081-001
Lapel Clip Card Punch	806503-001
Video Kit (camera, video board, 5-panel ribbon, and 100 of the 30-mil PVC cards)	104522-001

Print Ribbons

The following imaging ribbons are optimized for use in Privilege card printers.

Ribbon Types	Print Ribbons		No. of Panels	Part No.
	Mono.	Color		
Monochrome Resin Ribbons ①				
Black ABS	②		③	800015-008
Black	✓		③	800015-001
Red	✓		③	800015-002
Green	✓		③	800015-003
Blue	✓		③	800015-004
Yellow	✓		③	800015-005
Gold	✓		③	800015-006
Silver	✓		③	800015-007
White	✓		③	800015-009
Multi-panel Ribbons for Color Printers ①				
YMCKrO		✓	5	800015-040
YMCKrOKr		④	6	800015-048
KrO	✓		2	800015-060
KsO	✓		2	800015-050

NOTES:
① Bar Codes require Black Resin printing .
② Black ABS ribbon only used with ABS cards.
③ Monochrome ribbons have no panel separations.
④ Duplex printing when resin is required on both sides.
YMC - Denotes Yellow, Magenta, Cyan colored panels.
Kr - Denotes Black Resin panel
Ks - Denotes Black Dye Sublimation panel
O - Denotes transparent Overlay varnish.

Special Ribbons

Description	Part Number
Overlaminate Ribbons (P500)	
Clear for full coverage (100 cards)	800015-014
Clear for Smart Card coverage (100 cards)	800015-013
Clear for Mag. Stripe Card coverage (100 cards)	800015-012
Holographic Overlay Varnish (P600)	
Privilege Security Seal (350 cards)	800015-011

Card Media

Only laminate 30-mil cards in P500 printers.

Description	Part Number
Cards (PVC)	
30 mil	800016-104
30 mil, Low Coercivity Stripe	800016-105
30 mil, High Coercivity Stripe	800016-106
Heavy duty Cards (PVC w/Polyester Core)	
30 mil	800017-101
30 mil, Low Coercivity Stripe	800017-102
30 mil, High Coercivity Stripe	800017-103

Miscellaneous Supplies

Description	Part Number
Drive Roller Cleaning Pens (12)	800105-001
Print Head Cleaning Swabs (25)	104526-001
Take-up Ribbon Cores (10)	205581-001
ID Card Lapel Clips (100)	104527-001
Mag. Head Cleaning Kit	104531-001

Installable Options

Description	Part Number
Memory Expansion	104525-001
Replacement Print Head Kit	104540-001

Appendix C Windows Card Printer Driver

Those needing to print from applications other than WindCard must first install a printer driver for the card printer. The CD-ROM shipped with the printer includes printer drivers for both Windows 3.1 and Windows 95.

Installation of Printer Drivers

Driver installation begins with insertion of the CD-ROM into the associated drive. The executable file may or may not start automatically, depending on the CD-ROM Auto Insert Notification check box setting within Windows.(See Settings, Control Panel, System, Device Manager, CD-ROM.) If the Card Design Software screen fails to appear within about 30 seconds after CD insertion, a manual start can be used, as follows:

For Windows 95:

1. Start the Windows Explorer and double-click on the drive letter designator for the CD-ROM. (e.g., E:)

2. Next click on the Cdman folder.

3. Finally, double-click on the Cdman.exe file.

For Windows 3.1:

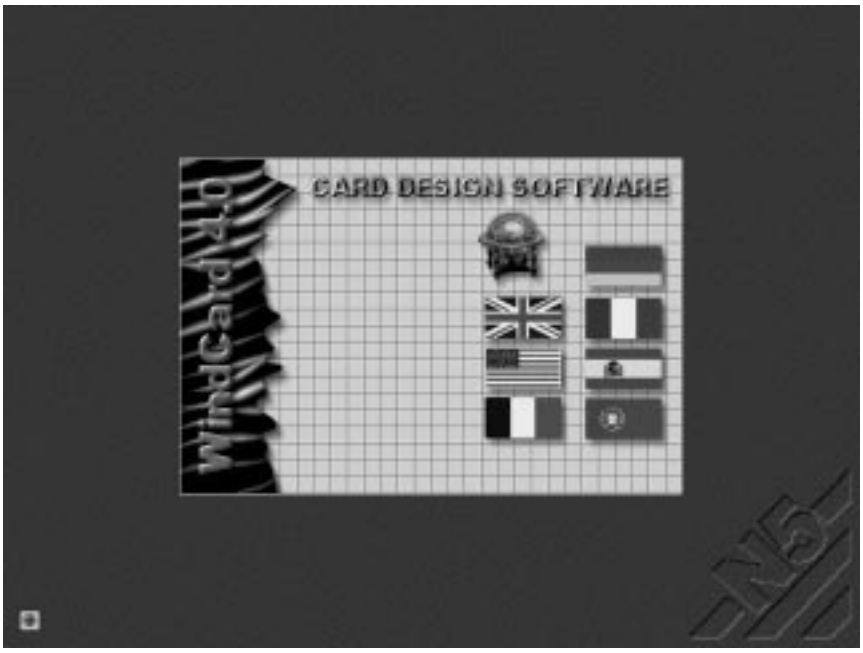
1. Select File, Run...

2. From the Run dialog, select Browse.

3. Select the CD-ROM drive, the Cdman folder, and double-click on Cdman.exe.

The screen that appears when the program starts has flags for several nations and a small button at the lower-left corner.

- Click on a flag to choose an associated language.
- Click on the button in the lower-left corner to quit this software. Subsequent screens have Back buttons that produce transitions back toward this screen so that a quit path exists from any point in the installation sequence.



In the screens that follow language selection, choose the operating system (Windows 3.1 or Windows 95), Windows Drivers, and then. Install Printer Driver. From this point on, the dialogs differ between Windows 95 and Windows 3.1.

Note that the Install Printers Driver screen has text that specifies the Drivers Folder as the location of the driver file to be installed. When requested, the path to the driver file must include this folder, for example:

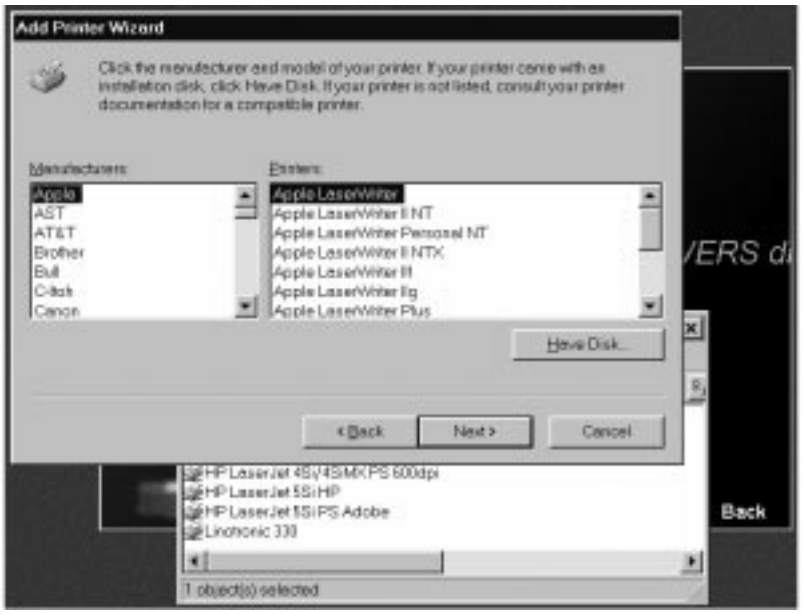
E:\driver\win95\oemsetup.inf

Windows 95 Sequence

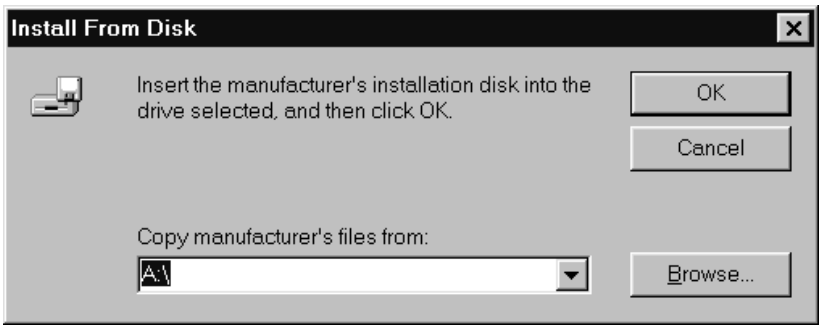
When the Windows Printers dialog then appears, Double-click on Add Printer.

This produces first a screen that allows confirmation of driver installation. With confirmation, a screen then appears that allows the installation of either a network or local printer.

When the Add Printers Wizard dialog appears, click on the Have Disk button.

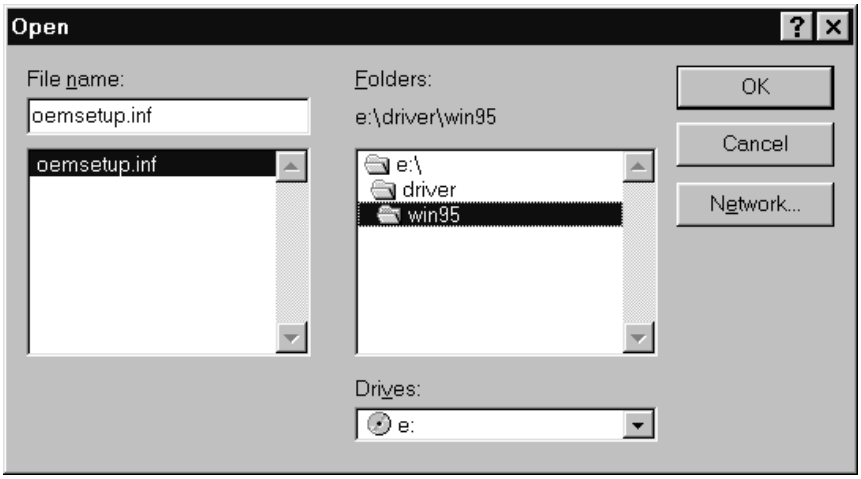


This produces the Install From Disk dialog.



As shown, Windows offers A: as the location of the driver. However, a complete path to the driver must be specified. Therefore, click on the Browse button to find the file.

This produces the Open dialog



In the example shown, E: has the CD, with a Driver folder that has a win95 folder, and oemsetup.inf is targeted as the driver for installation. However, except for the driver folder, a different path may be associated with the system setup in use.

Click on the OK button to proceed. Also click on OK in the dialog that requests installation of an associated disk.

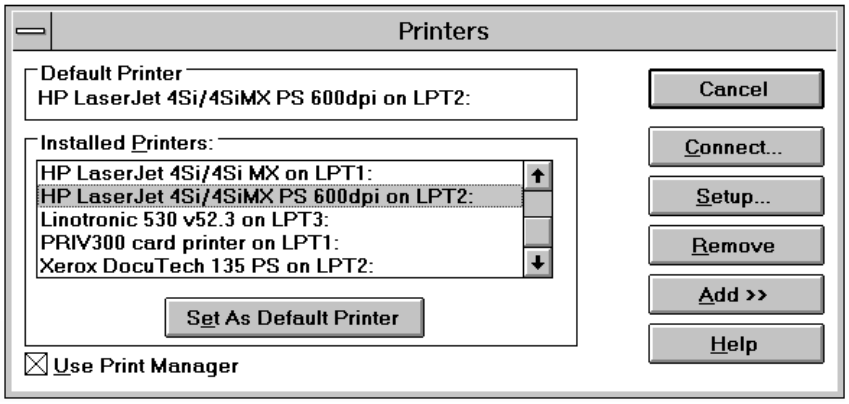
At this point, the Add Printer Wizard reappears with the Privilege Printer listed.

Click Next to proceed through the remaining Add Printer Wizard screens, and specify desired parameters. Note that, although selectable, P500 and P600 printers cannot use a COM port, limiting the choices to either LPT1 or LPT2.

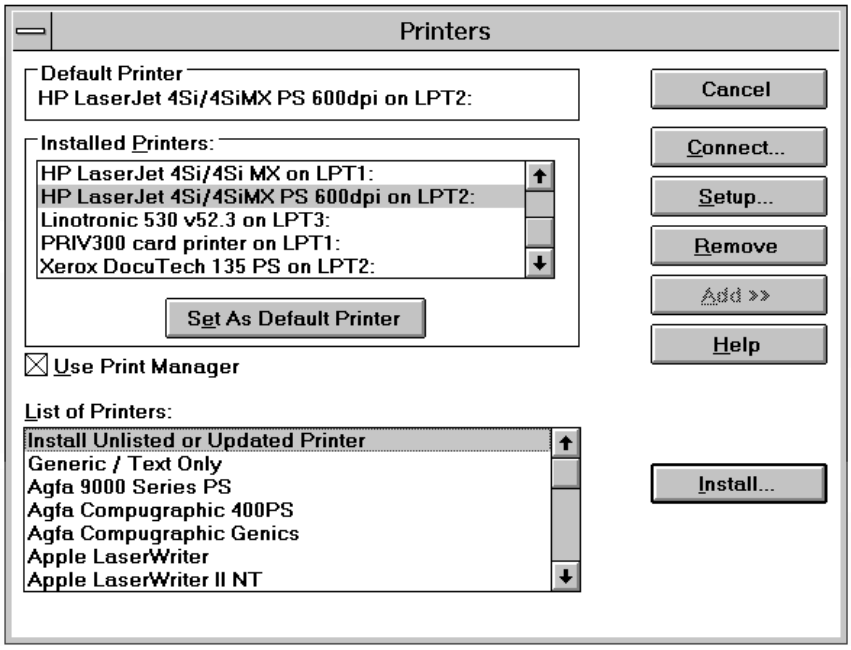
Windows 3.1 Sequence

For Windows 3.1, the Printers dialog appears after the selection of Install Printer Driver.

Click on the Add» button.



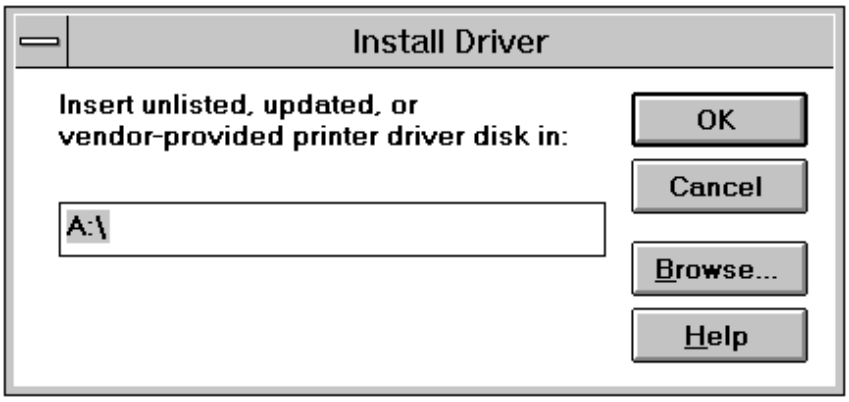
In the next Printers dialog, select Install Unlisted or Updated Printer.



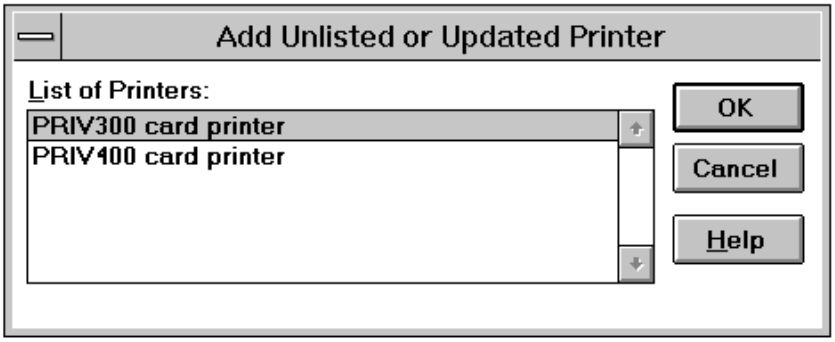
The Install Driver dialog appears, allowing entry of the path to the associated file. Remember that the needed file resides on the CD drive in its driver folder. To find the file, click on the Browse button. or click on the OK button after replacing the A:\ —as in the following example:

Where the E: may need to be replaced with the system CD drive designation used.

E:\driver\win3.1\oemsetup.inf



This produces the Add Unlisted or Updated Printer dialog. Note that the List of Printers includes P300 and P400 Card Printers and not P500 and P600 Printers. At this software revision the P300 can be used. However, support exists only for single side printing.



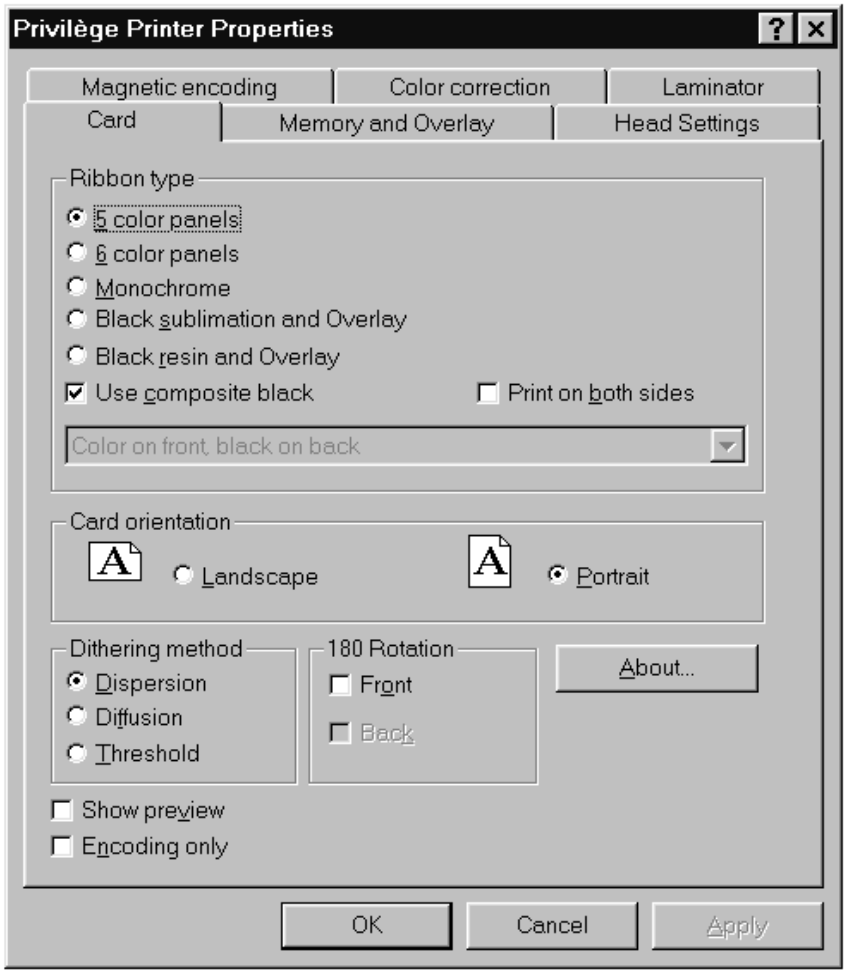
Click on OK and the printer driver installs and appears in the Installed Printers list in the Printers dialog box.

Using the Windows 95 Driver

Following driver installation, the Privilege printer becomes a selectable device accessed from the dialog that appears with selection of File, Print… Therefore, users can send images created in an associated application to the printer for card imaging.

Print dialogs offer settings that reflect the uniqueness of the selected driver. Like other printers, Privilege printers have many operational parameters that a user can vary. Users can access many of these settings by clicking on the Properties button. Applications can place this button either in the Print dialog or an associated sub dialog.

To reach the following dialog, click on the Properties button.



First, note the tabs at the top of this dialog. Separate descriptions for each tab appear in the following.

The Card tab has categories for ribbon selection, Card Orientation, Dithering Method, and 180° Rotation. Check boxes also exist that enable or disable a Preview and Magnetic Encoding Only operation, respectively.

Ribbon selection should duplicate the ribbon installed in the card printer. Note, however, that the other settings in this grouping prescribe variations on ribbon use.

Card orientation settings allow the matching of the card orientation to the print file image orientation.

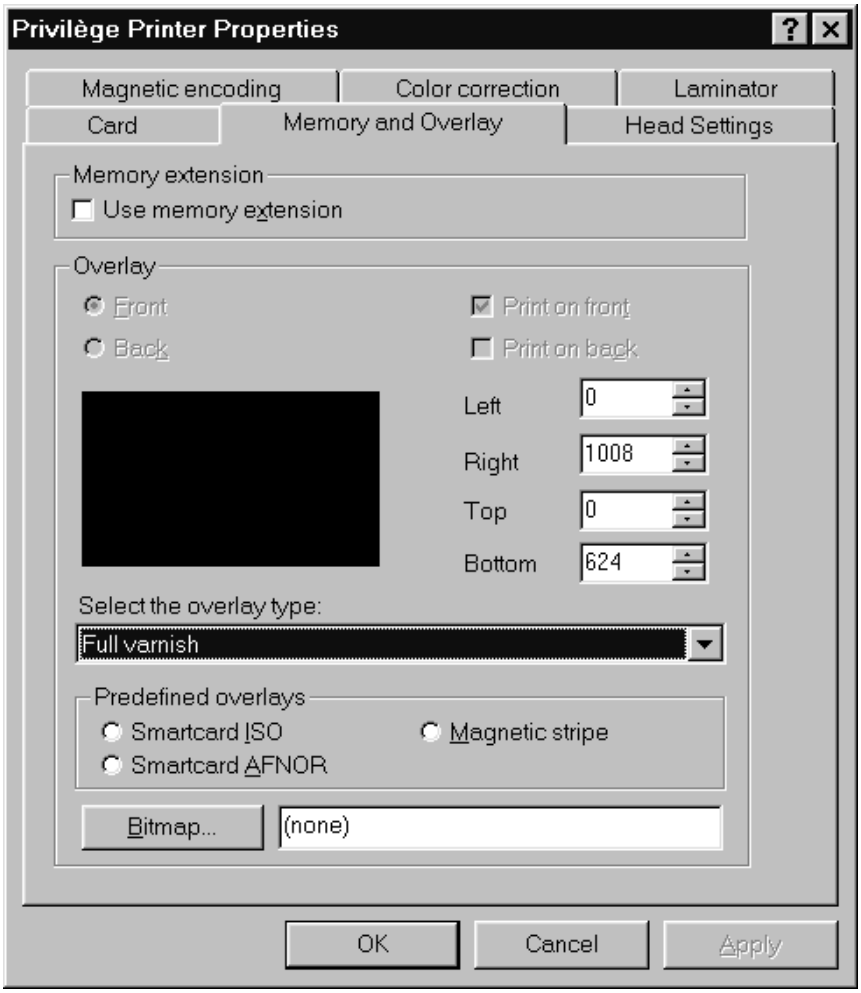
Dithering refers to the format used to blend colors. Users should choose the format that produces the most pleasing results.

180° Rotation flips an image upside down. Either or both card side images can be flipped.

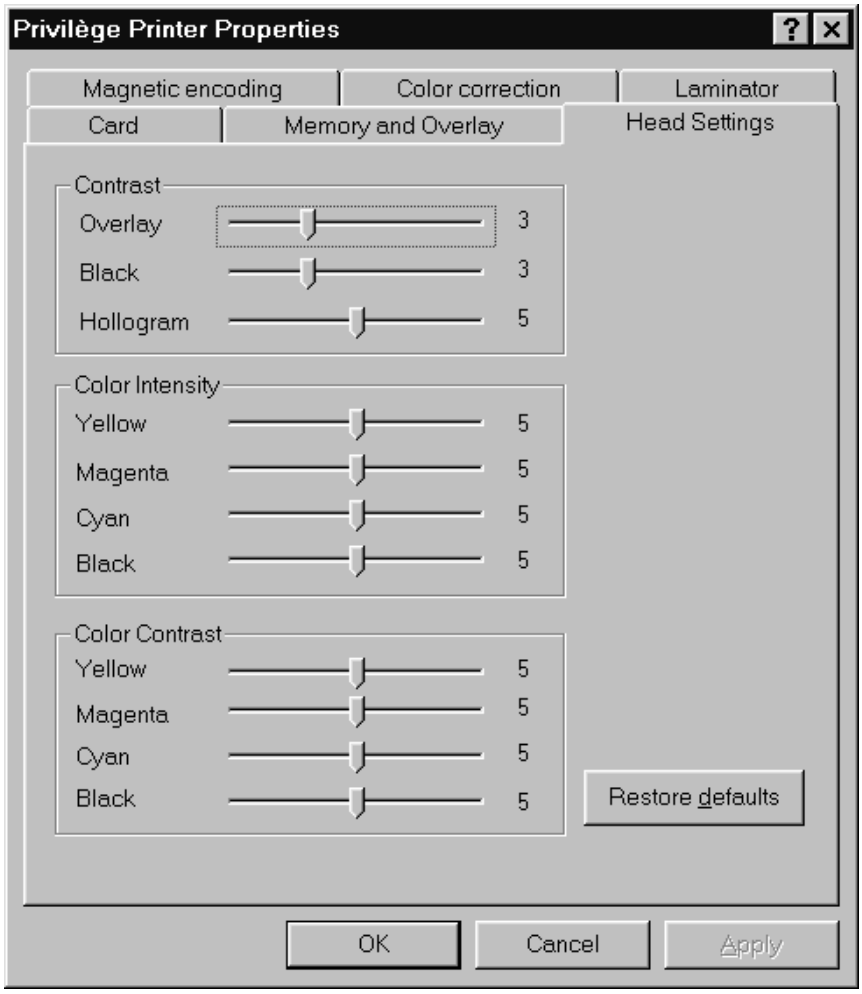
The Memory and Overlay tab has a check box that can enable or disable the use of Expanded Memory, if installed. The remaining settings apply to the application of an Overlay Varnish. Note that varnish panels do not exist on all ribbons, only on those with multiple panels.

The black area in this tab indicates where varnish gets applied. By changing the dot values that appear to the right of this area, the area to receive varnish can be changed. Note that the card origin lies at the upper left corner and that dot values correspond to 300 dots per inch.

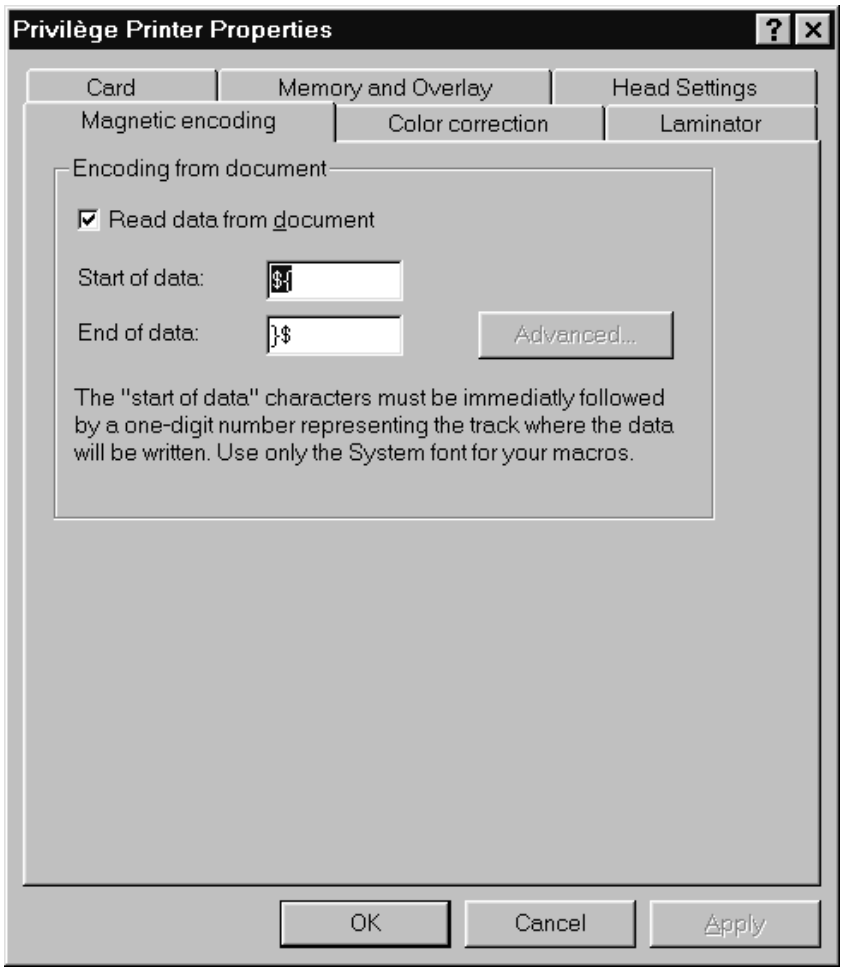
Users can select preestablished varnish mapping for smart cards and magnetic stripe cards by clicking on the radio buttons below the black area. Further down appear selections that implement importation of a bit map that defines varnish mapping. Any bit map imported should be black and white, where black prescribes varnish and white prescribes no varnish. Note that the initially all-black area changes to reflect other selected mappings.


Privilège Printer Properties
Magnetic encoding
Color correction
Laminator
Card
Memory and Overlay
Head Settings
Memory extension
Use memory extension
Overlay
Front
Back
Print on front
Print on back
Left
0
Right
1008
Top
0
Bottom
624
Select the overlay type:
Full varnish
Predefined overlays
Smartcard ISO
Smartcard AFNOR
Magnetic stripe
Bitmap...
(none)
OK
Cancel
Apply

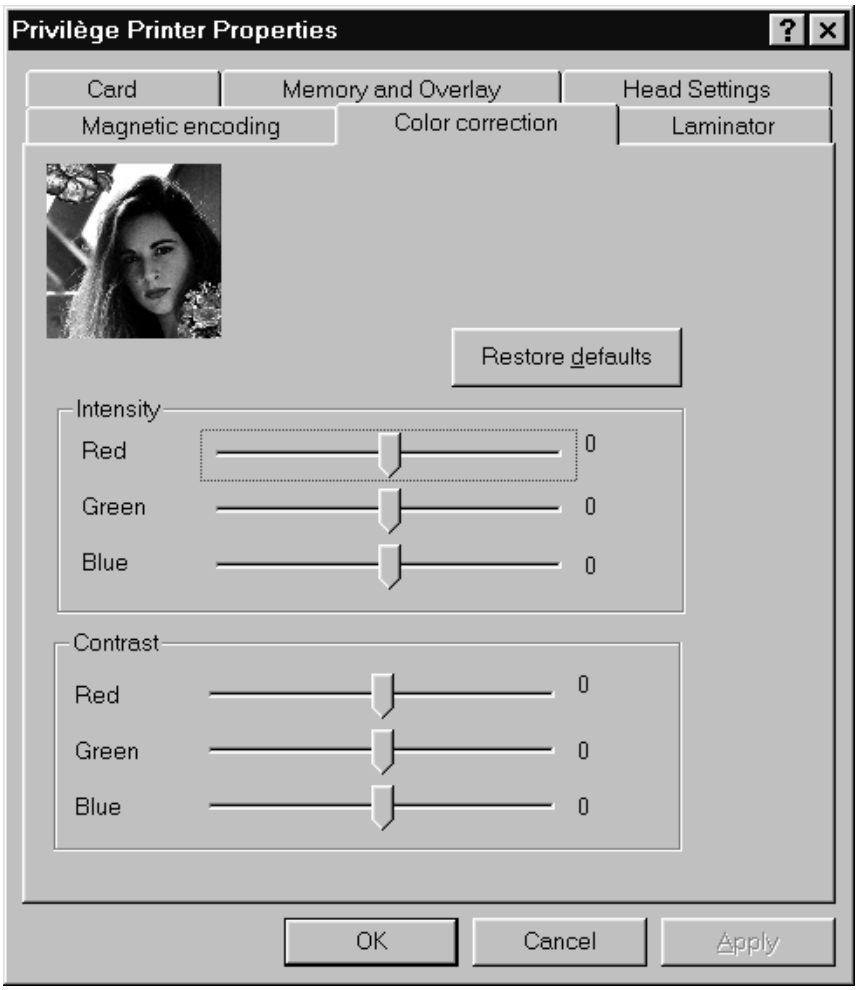
The Head Settings tab offers sliders that control the contrast and intensity related to each print ribbon panel.



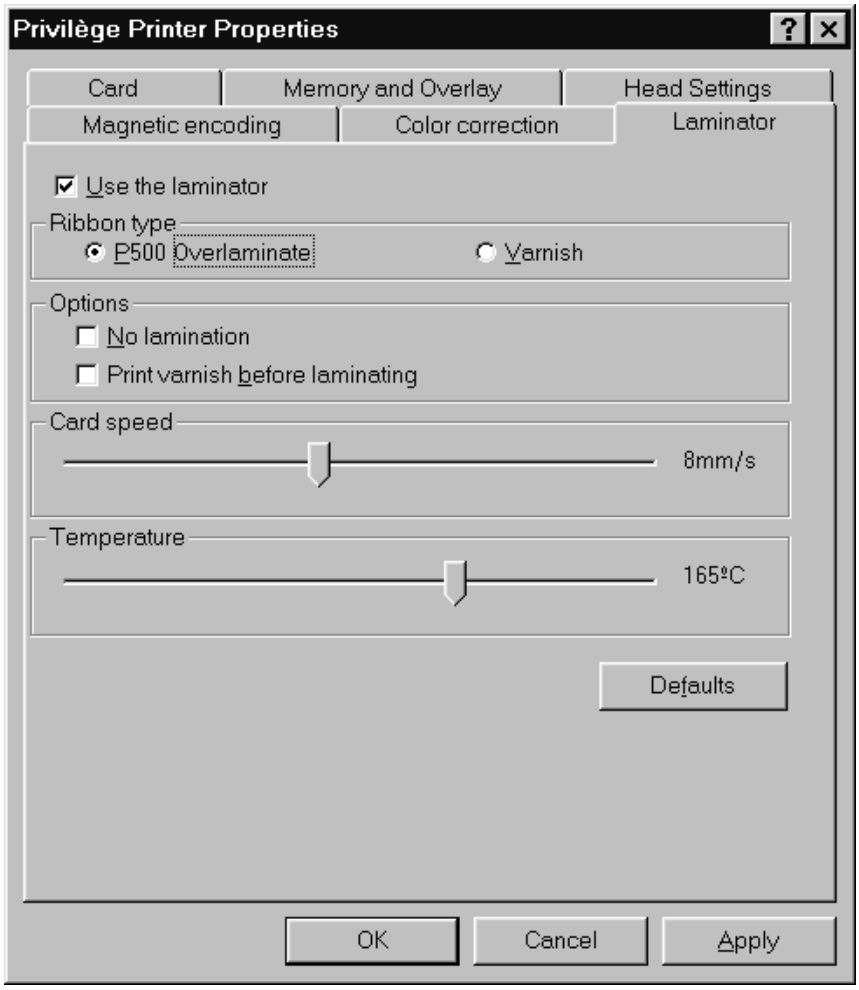
The Magnetic Encoding tab offers settings that apply when the selected print file contains encoding data (see Section 3 examples using Windows driver). This tab then allows users to specify which non-recording characters in the document file specify Start of data and End of data. Note that data for each track requires this format and a track number must follow the Start characters.



The Color Correction tab has sliders that allows color adjustments for red, green, and blue both intensity and contrast. These settings can serve to make card images match corresponding monitor images.

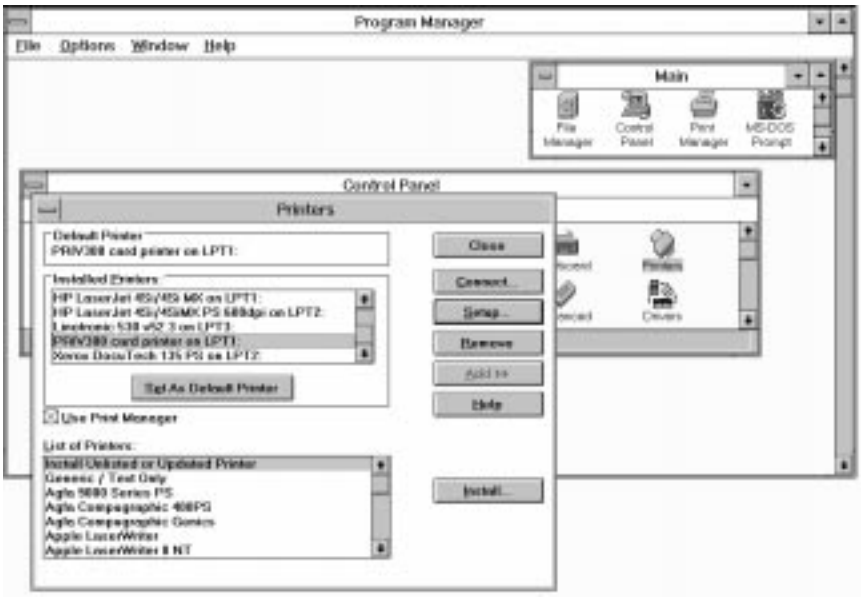


The Laminator tab has settings related to the Lamination Station in P500 card printers. This tab allows enabling or disabling of lamination, specification of the Lamination Station ribbon type, the card speed through the laminator and the lamination temperature.



Using The Windows 3.1 Driver

The Privilege Windows 3.1 printer driver allows control of several printer features when printing from non-WindCard™ Windows™ software applications. These features are accessed through the “Printers” control panel in the Program Manager “Main” group.

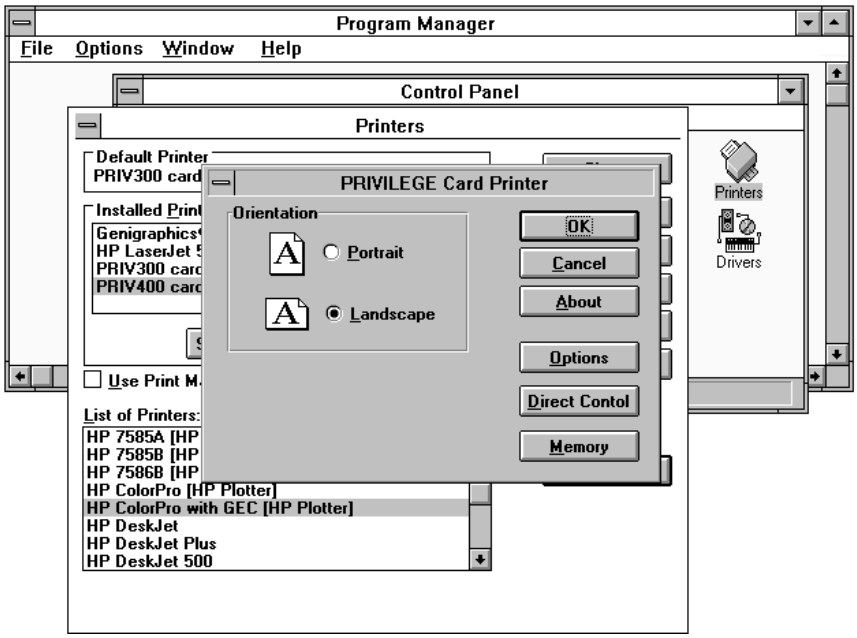


For a Privilege printer, select PRIVXXX , where XXX designates the desired installed driver. Double “click” on the PRIVXXX or select “Connect” to set the printer to the correct printer port.

Printer Setup

The printer setup (or controls) are accessed through the “Printers” display, see previous page. Select “Setup”.

Select the print orientation by clicking on the “Portrait or “Landscape” buttons. See display above.



Options Selection of "Options" from the Privilege Card Printer Setup dialog produces the following dialog, an advanced user control interface for printers. Pull-down menus allow users to specify overlay varnish use, installed ribbon type, and how a black panel participates in the printing. A Head Setting button produces a dialog box that allows intensity level adjustments for YMCK and the Overlay Varnish.

Check boxes enable or disable duplex printing, data compression, and a preview of the image awaiting printing. You can rotate images 180º from either Landscape or Portrait to avoid conflicts with a magnetic stripe or a punch out for a badge.

The Overlay Varnish control serves to position the overlay material accurately. The display box represents the card surface. The black area on the display box represents overlay material. The white area represents area without overlay material.

Overlay varnish protects printed images. Never use an overlay on magnetic stripes, smart chips, or bar-codes.

The values specify the top left and bottom right corner positions in dots of an overlay rectangle, where a dot represents 0.0033... inches (0.0847 mm).

Select the“File” button to import a Windows™ Bit map (<Filename>.BMP) format file to apply a custom overlay mask. The file dimension in dots, is a maximum 1008 dots wide by 624 dots high.

Select the “Varnish” pull-down to control the Overlay Varnish material mask area and type.

Select the “Film Type” pull-down menu to select the ribbon panel type in use.

Select the “Black Film” pull-down menu to control how the black ribbon panel participates in the printing process. Black Resin panels do not participate in printing composed of CMY color graphics. Black Resin panels primarily serve to print bar-codes and fonts.

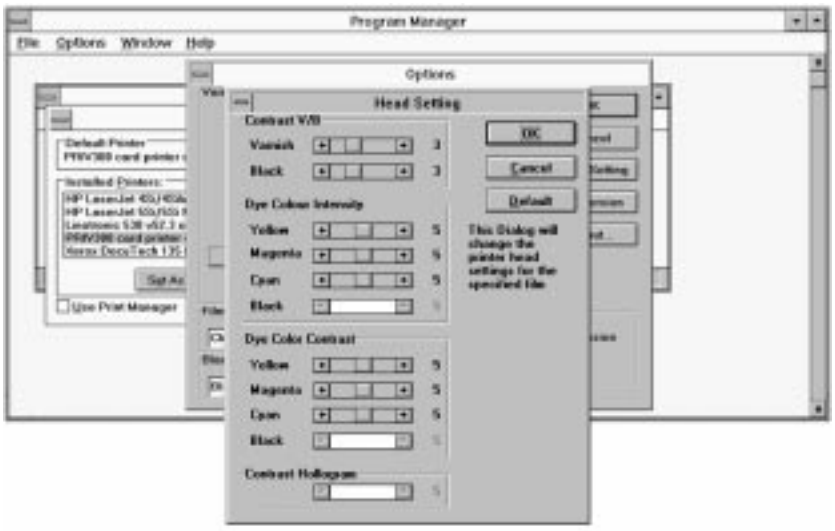
Head Setting

Select “Head Setting” to control the print intensity or contrast of each color. These settings allow the advanced users to control color and image clarity.

The “Contrast V/B” settings control the heat levels applied that transfer black resin or overlay varnish material.

The “Dye Color Intensity” settings control the maximum amount of heat used to sublimate the color dye.

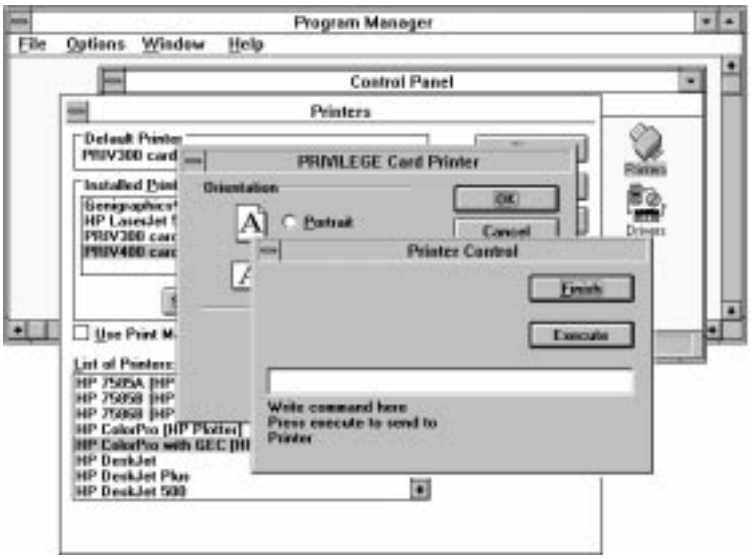
The “Dye Color Contrast” controls the minimum color intensity level for a color.



Setting a Contrast V/B or Dye Color Intensity level to high (or low) may result in poor image quality or ribbon damage.

Printer Control

Selection of Printer Control from the Privilege Card Printer dialog produces the following dialog. This dialog allows you to issue one or more of the commands described in the Programmer's manual. First enter the command(s) in the space designated. Press Execute to send the string to the printer. Press Finish to close the Printer Control box.



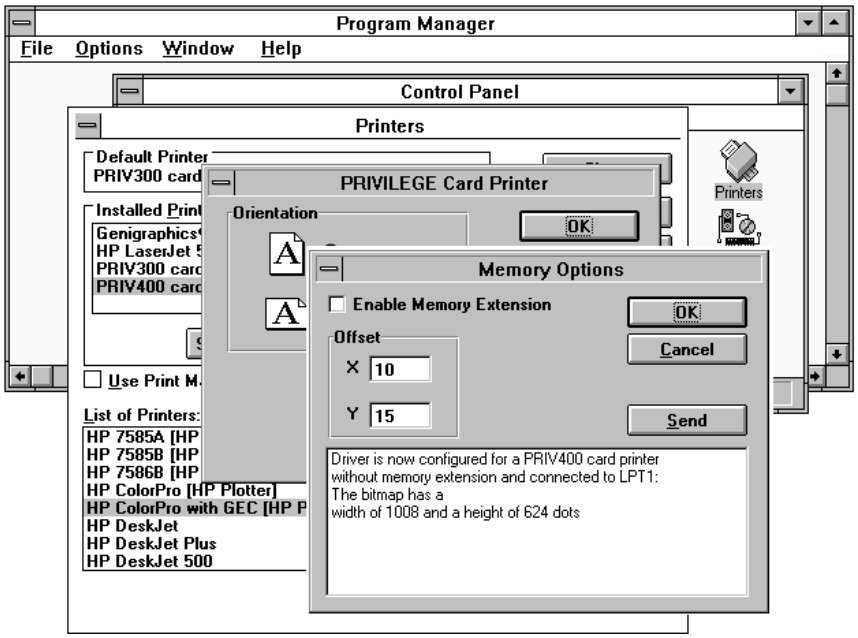
The following may prove useful in checking the printer interface along with associated command-activated components:

Command	**Result**
A	Prints Test Card
ME	Ejects Card
!D	Lowers Print Head
!M	Raises Print Head
!P	Runs Stepper (2 sec.)
!R *data*	Where: *data* = Head Resistance

Memory Options

Selection of Memory from the Privilege Card Printer dialog produces the following. These settings either enable or disable the benefits of the Expanded Memory option. Enabled, bit maps for each of the color YMC and monochrome KO panels download together. Disabled, bit maps download separately for each ribbon panel.

Settings for Offset determine the origin for card graphics.



Glossary

ABA: American Bankers Association; sometimes used to refer to the ANSI/ISO Track #2 encoded at 75 BPI density.

ABS: Polystyrene compound, a less durable (and lower print quality) alternate material for the common plastic credit card.

ANSI: American National Standards Institute.

ASCII: American Standard Code for Information Interchange

ATM: Automatic Teller Machine.

Bar Code: A series of vertical or horizontal printed stripes are spaced in such a manner as to represent coded data. The spaces between the stripes are read optically by a photo detector cell.

Barium Ferrite: A magnetic pigment, BaFe, with high coercivity (700-4000 oersteds).

Bleed Edge: The printing of solid colors to the edge of the credit card.

BPI: Bits per inch; the encoding density of a magnetic stripe.

Butterfly Pouch: An unlaminated ID badge with a hinge running along one edge into which the prepared ID card is inserted and laminated.

Card: Commonly used generic term for magnetic stripe media regardless of shape, construction, and material; e.g., magnetic stripe cards, badges, tickets, forms.

Card Pass: A *card pass* or *pass* occurs when the Print Head is engaged and making contact with the media (i.e. card). A card pass is used primarily to gauge Print Head life. A printer pass does not have to print for a pass to count for a pass of printer life. Example: A four color print CMYK and Varnish would count as five (5) card passes.

Carrier: A thick paper folder with a hard glossy inner surface into which an ID badge is inserted for processing through a laminator.

Character: The specific binary number (a pattern) and its associated letter, number, symbol, or function in a set of data transmission codes, e.g., the ASCII code.

Check Digit: Using an algorithm with one or more data sets to compute a digit, which is used to verify validity of the data set. Under ANSI/ISO specs, the final digit of the individual account number.

Coercivity (Hc): The property of a magnetic material which resists demagnetization, measured by the maximum value of its coercive force.

Core: (a) The central material layer, usually PVC, of a laminated magnetic stripe card on which the graphics are printed before overlay lamination. (b) The high-permeability low-coercivity ring running from the gap through the coil of a read or encode head.

CR-80: Industry specification name for credit card sized cards.

Credit Card Size: An ID badge or card measuring 2.125" wide by 3.375" long.

CMY: Cyan, Magenta, and Yellow are the primary (print) colors. The three colors, CMY, are combined in varying degrees, (15 bits for 32K colors in Privilege 300 and 400 color printers). Note that Privilege color printers image these colors using YMCKO and YMCKOK ribbons, where colors and sublimation black comes from YMC combinations, a thermal transfer black comes from the K, and a protective transparent overlay comes from the O.

CMYK: Cyan, Magenta,Yellow, and Black are the print colors used by press men when using the four-color process.

Data (IBM) Size: An ID badge or card measuring 2.328" wide by 3.250" long.

Debit Card: (a) A card with value encoded on the magnetic stripe, which is re-encoded with a lower value at each use. (b) A magnetic stripe card used with a PIN number to authorize electronic debit of funds from an account, more properly an EFT card.

Density: The number of bit cells encoded per unit length along the magnetic stripe, usually expressed as bits-per-inch, or BPI.

Die Cutter: A punch & die device used to cut a photo or ID material to exact size for insertion into a laminating pouch.

Dithering: A technique for imaging color or gray-scale shades that uses a dot matrix. (e.g., a matrix with 2 dots imaged will appear lighter than a matrix with 16 dots imaged.) Thermal Transfer printers employ this technique.

DPI: Dots Per Inch; print density

Dual Stripe Card: A card containing two separate magnetic stripes, usually at the top and bottom of the card.

Dye Sublimation: An imaging mechanism for transferring measured quantities of ribbon dye onto a print media. Because imaging occurs at the resolution of the print head (typically 300 dpi) near photographic quality results.

Emboss: To produce raised letters and numbers on a PVC card, e.g., the account number and name on a credit card, by mechanical pressure from the back side.

Encoder: The electromechanical device, which contains a means for measuring distance traveled along a magnetic stripe, used to produce flux reversals at specified locations along the stripe.

Encoding: The process of creating flux reversals at specific locations along the length of a magnetic stripe such that the flux reversal pattern represents specific data.

Encrypt: Using an algorithm to transform data to conceal its meaning or value.

ESD: Electrostatic Discharge, typically released from a charge buildup on people exposed to dry conditions.

Format: The set of unique bit-string patterns of Zeros and Ones corresponding to the set of data characters used in magnetic stripe encoding; many different data formats are used, the best known being the ANSI/ISO and ALPHA formats.

High Energy Stripe: High coercivity magnetic stripe, usually above 3000 oersteds; sometimes mistakenly understood to have a higher read output.

Hot Stamping: A method of applying the magnetic stripe to a card; adhesive is applied to the magnetic material on a tape, and the magnetic material transferred form the tape to the card with a heated roller.

ID Badge: A magnetic stripe card used for identification, usually supplied unlaminated; the user's photo, name and data are inserted between the layers and then laminated into the solid card.

Infrared: An infrared card depends upon encoding information with varying density patterns that are read by infrared detectors. The patterns are optically detected but are not visible to the human eye.

Insertion Reader: A manually operated reader with an opening equal to the width of the magnetic stripe card, into which the entire card is pushed.

ISO: International Organization For Standardization

Lamination: (a) A method of applying a magnetic stripe tape to a card; adhesive applied to the film side of a magnetic material coated bonds to the stripe to the card. (b) A method of fabricating cards, built up of several layers of material with thin sheets of adhesive in between and bonded under heat and pressure. (c) A coating or die-cut panel applied by the printer to add scratch resistance and inhibit fading from UV exposure.

Laminator: A device with rollers that apply both heat and pressure to add layers or coatings to cards.

Low Energy Stripe: Low coercivity magnetic stripe, usually 300 oersted; does not refer to read output.

Magnetic Slug: Magnetic slugs or metal pieces embedded or layered in a card used by magnetic sensing devices. Also known as a shim card and generally limited to single code parking operations.

Magnetic Stripe: A thin layer of material consisting of oriented ferromagnetic particles rigidly held together by a resin binder and bonded to a nonmagnetic carrier medium such as paper or plastic.

Media: The material used, e.g., magnetic stripes, cards, ribbons, etc.

Mil: One thousandth of an inch.

Optical Memory: Optically coded cards depend upon varying transparency densities arranged in rows, columns, or spots, read by a system of light sources and photo detectors.

Oersteds: An electromagnetic unit of magnetic intensity (centimeter-gram-second) used to rate the magnetic intensity of magnetic media, such as the Magnetic Stripe used on credit card style plastic cards.

Over-laminate: Either a protective coating or a die-cut panel (see Overlay).

Overlay Varnish: A thin transparent coating imaged on cards to resist scratching and fading from exposure to UV radiation.

PASS: See Card Pass.

PIN: Personal Identification Number, encrypted in the magnetic stripe encoding on a financial card.

Polyester: A plastic material frequently used for ID badges and access control cards, stronger than PVC, but cannot be embossed.

Pouch: The unlaminated outer layer of an ID Badge, usually polyester, between which the paper core is placed for lamination.

Proximity: Proximity cards incorporate embedded or laminated RF (radio frequency) circuits (in microchip form) which utilize electrically tuned circuits that will resonate when activated by a transmitter sweeping through the RF range. A receiver picks up a resonating frequency and activates the code deciphering system. Unlike other access cards the proximity card can be worn or carried and detected at various ranges dependent upon the system's design capabilities.

PVC: Polyvinyl chloride, the basic material of the common plastic credit card.

Slot Reader: Swipe reader.

Smart: A card containing an onboard computer chip and a power supply, normally a lithium battery capable of storing up to six pages of text. This is the only card in the industry at this time that has an "active" technology.

Substrate: The material on which the magnetic stripe is deposited.

Swipe Reader: A manually operated reader with a long narrow channel (slot) through which the magnetic stripe edge of the card is pushed.

T&A: Time & Attendance systems or applications.

Track: A strip of specified width and location running the length of the magnetic stripe on which data is encoded; Track 1, 2 and 3 are specific track locations defined by ANSI/ISO standards.

Watermark Magnetic: A card containing small oxide particles physically oriented into zones of varying widths. The particles are set while the iron oxide slurry is still fluid. The binary structure spacing of this computer-generated pattern is then oven-cured to create an unalterable 10 or 12-digit code number while leaving another layer of the magnetic stripe available for encoding soft conventional data.

Wiegand: A Wiegand card utilizes embedded magnetically unstable ferromagnetic wires formed in a permanently tensioned helical twist. The Wiegand card reader uses a magnetic coil that picks up the flux reversal characteristics of the wires and converts them to binary pulses.

YMCKrO Ribbons: Printer ribbons with color panels that also include panels for resin black and a protective clear overlay varnish.

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